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A STUDY OF HIGH SCHOOL SPELLING MATERIAL

JOHN A. LESTER

The Hill School, Pottstown, Pa.

Among the literature of spelling, now of considerable extent, there have been many valuable investigations made with the object of learning and describing the source of the ability to spell, its measurement, hygiene, relation with other abilities, the source of memories involved and their relative efficiency. There have been very few attempts to discover the limits of the problem, to define its exact nature, and to seek specific remedies. The waste of time and money in the teaching of spelling is a commonplace among educators. It has been variously calculated that from one to three years is lost in the school life of every child in the process of learning to spell, and the national loss has been estimated in hundreds of millions of dollars. While these estimates are more or less guesswork, the practical school problem is the double one, first of gaining efficiency, and second of saving time.

I. Problem

The investigation, some of the results of which are set forth in the following pages, was begun some years ago in the belief that a great economy of time might be effected if for a given age the extent and nature of misspellings were determined. It sought, therefore, to learn not only what words are misspelled, but also how they are misspelled; and having arrived at this knowledge, it aimed at devising by experiment and practice efficient and time-saving methods of teaching this material. The specific objects of the investigation may be stated as follows:

1. To determine what words are most frequently misspelled by the graduates of high schools and preparatory schools.

2. To determine how these words are misspelled.

3. To determine how these words may be taught and learned with a minimum expenditure of time and energy on the part of teacher and student.

II. Material

The material used was the compositions written upon subjects from their own experience by candidates for the College Entrance Examination Board's papers in English in the years 1913–1919 inclusive. This material seems to afford a safe basis for investigation for it is broad in its nature, offering free scope for free composition on matters within the experience and knowledge of the writer; it is the work of 2414 students widely scattered, resident in forty-six different states; it is the work of pupils of seventeen to eighteen years of age from every social class and every kind of school training; it represents the product of this training when it has presumably reached a uniform level—the level set by the College Entrance Examination Board. That the conditions under which the compositions were written were not found disturbing or distracting is evidenced by the fact that nearly forty per cent of the books were finished and handed in before the expiration of the time allotted.

In approximately 1,378,000 words of free composition written by 2414 different candidates 2602 words were misspelled; and these 2602 words gave rise to 14,002 misspellings. It should be observed that in this count was not included the work of candidates obviously illiterate, and of foreigners unacquainted with the English language, and that in the composition work of every individual a word misspelled was counted only once, unless the writer varied in his misspelling, in which case each variation was counted. A word obviously containing two or more misspellings (*e.g.*, *resieve* for *receive*) appears in the count as a single misspelling. The distribution of these 2602 words in relation to the 14,002 misspellings is given in Diagram No. I.

From this diagram it is seen that 10 words were responsible for more than 6 per cent of the total misspellings; 50 words were responsible for nearly 20 per cent; 100 for more than 30 per cent; 200 for 44 per cent; 300 for more than 50 per cent; and 775 for nearly 75 per cent. The plotted curve in Diagram No. II shows the distributions of the misspellings of these 2602 words.

In what follows attention is centered upon these 775 words of greatest frequency. They include all the words which were misspelled,

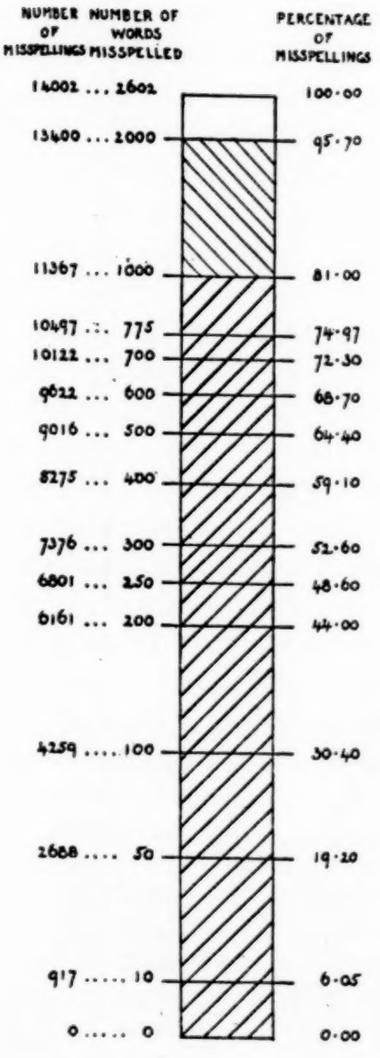


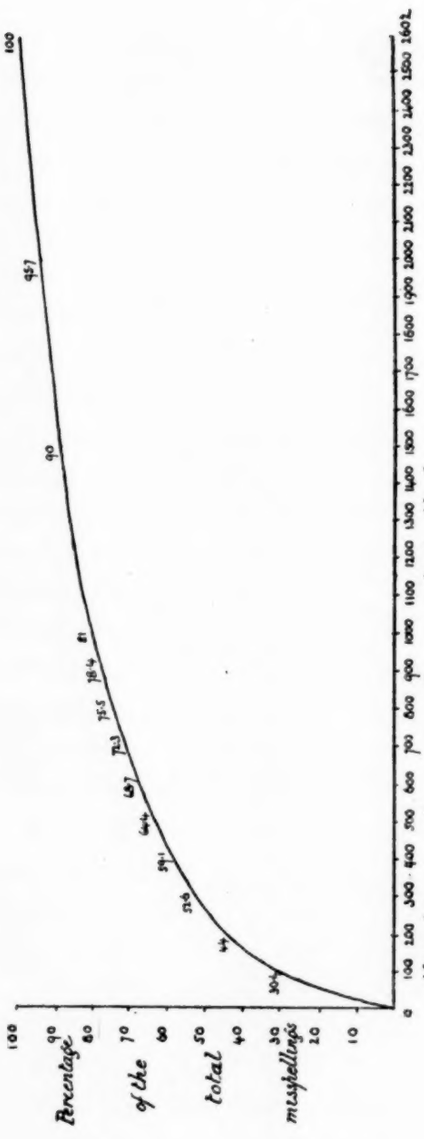
DIAGRAM NO. 1

Showing the distribution of the total misspellings in relation to the number of different words misspelled.

Misspellings of the first thousand words

Misspellings of the second thousand words.

DIAGRAM II Distribution of the misspellings of the 2602 words misspelled.



a total of more than four times in the composition writing of 2414 candidates during the years 1913–1919. As will be seen from Diagram No. I, these 775 words occasioned 10,497 misspellings.

To attack intelligently the problem in hand it is clearly necessary to know not only what words are the causes of the trouble, but also how they cause it. It was thought advisable, therefore, from the first to record not only the word misspelled, but the form of the misspelling. When these forms of misspelling were collected, classified and studied, the existence of certain current types of misspelling in many words became evident. Many words displayed not merely one misspelling, but two, and sometimes three types of error. If the relative frequency of types of misspelling was to be determined it was necessary first to classify the errors occurring in the recorded forms, each under its proper type. When, therefore, two different errors occurred in a single word, each error was recorded with the type to which it belonged. Thus *existence* is frequently misspelled *existance*, and less frequently *exsistence*. But sometimes a student writes *exsistance*, thus making two separate and distinct errors in the spelling of the word. Again the form *comite* shows three errors; *m* for *mm*, *t* for *tt*, *e* for *ee*. In all such cases, each error for the purpose of type study was catalogued separately according to class. The 10,497 misspellings of 775 words resolved themselves into 10,853 type misspellings. Of the 775 words studied the first 50 in order of frequency of misspelling are set forth in the following list. In the first column occurs the word, in the second the number of times it was misspelled, in the third the different types of misspelling with their relative frequencies.

too	**167**	to 158, two 8, toe 1
its	**160**	it's 154, itt's 3, hit's 1, it'z 1, its's 1
believe	**77**	beleive 72, bilieve 3, beleeve 2, beleave 1
together	**73**	to-gether 51, to gether 18, togeather 4
their	**66**	there 37, thier 26, they're 3
principal	**63**	principle 59, prinsipal 2, principall 2
committee	**62**	comittee 22, committe 18, commitee 16, committy 10, committey 2
therefore	**61**	therefor 49, there fore 5, therfore 2, theirfore 5
separate	**61**	seperate 57, saperate 4
pleasant	**59**	pleasent 50, plesant 13, plessant 2
receive	**56**	recieve 50, recive 4, reseive 2, resceive 1
benefit	**55**	benifit 37, benefet 16, benefeit 5, benefite 2
occurred	**54**	ocured 42, ocurred 8, accured 2, occered 2
there	**53**	their 51, ther 2
o'clock	**49**	oclock 41, o-clock 8

don't	47	dont 32, do'nt 11, doe'nt 4
immediately	47	immediatly 24, imediately 7, immeadiately 7, immidiately 1
affect	47	effect 38, afect 9
business	45	buisness 32, bussiness 8, busyness 2, busines 2, bizziness 1
equipped	45	equiped 30, equipt 13, equipted 2
acquaintance	45	aquaintance 27, acquaintence 17, adquaintance 1, ackwaintance 1
discipline	45	disciplin 16, dicipline 6, disipline 4, disapline 2, dissipline 1
independent	44	independant 41, indipendent 3, indeppendent 1, independente 1
ammunition	44	amunition 42, amunishon 2, ammunittion 1
referring	43	refering 38, refferring 8, refearing 1
necessary	42	neccessary 24, nescessary 11, necesary 4, necessery 3
until	42	untill 39, un-til 3
existence	41	existance 36, exsistence 12, existense 2
principle	41	principal 39, prinsiple 2
appearance	40	appearence 33, apperance 9, appearrance 3
led	40	lead 40
across	40	accross 37, acros 3
dependent (adj.)	39	dependant 37, dipendent 1, dependente 1
extension	39	extention 37, exstension 2
occasionally	39	occassionally 26, occaisionally 6, occasionaly 4, occasonally 2, occasionly 1
surprise	38	suprise 31, supprise 7, surprize 3, saprise 2
government	38	goverment 22, govenment 12, govonment 4
acknowledge	38	acknowlege 15, acknoledge 21, acknowledg 2
lose	37	loose 35, loos 1, loze 1
effect	36	affect 34, efect 2
choose	36	chose 32, chooze 4
successful	35	sucessful 28, succesful 6, successfull 4
athletic	35	atheletic 32, athlectic 2, athelletic 1
possession	35	possesion 21, posession 10, possetion 4
opportunity	35	oportunity 28, oppertunity 8, apportunity 3
quarter	34	quater 32, quartter 2
before	34	befor 29, be-fore 5
beginning	33	begining 27, beggining 9
aeroplane	33	areoplane 18, airoplane 14, earoplane 1
sense	33	sence 31, scense 6

III. Classification of This Material

The object of the study of the misspellings of these 775 words was to evolve a classification and presentation of this material for the purpose of teaching it with thoroughness but with the greatest economy of time and energy on the part of teacher and student.

(*A*) *Nature of the Words Misspelled*

An examination of the 775 words most frequently misspelled by boys and girls of seventeen to eighteen shows that more than 50 per cent of the misspellings are of words in the grade vocabularies, and 31 per cent are of words in Ayres' list of the thousand commonest English words. And yet the joint vocabularies of these students is large and varied. Only 45 out of the 775 words occur in the 600 words which, according to Ayres, constitute more than seven-eighths of the ordinary words of written expression; 606 or 78 per cent of the 775 words do not occur at all in Ayres' thousand commonest words; and 37.6 per cent are not to be found in the combined vocabularies of 13 adults as investigated by Cook and O'Shea. About one-third of the misspellings collected are of words of three syllables; one-third misspellings of dissyllables; and one-third misspellings of monosyllables or of words of four syllables or more.

(*B*) *Nature of the Misspellings*

1. *Derivatives.*—It is important for the pedagogy of spelling to know whether the word lists presented should include derivatives, or whether they should be drawn up, as is usually the case, upon a dictionary basis. Table I shows the relative frequency of misspellings of derivatives.

TABLE I.—MISSPELLINGS OF DERIVATIVES

	Number of words whose misspellings are more than half of them misspellings due to derivatives	Number of words which show any misspellings due to derivatives	Total number of misspellings due to derivatives
Number.....	180	213	2709
Percentage.....	23.2	27.5	25.0

About one-quarter of the misspellings of high school and preparatory school graduates are misspellings of derivatives.

2. *Lapses.*—There is an obvious distinction between a misspelling which is clearly due to ignorance of the correct form of the word, and a lapse or error of inattention. An effort was made to determine what proportion of the total 10,497 misspellings fall into certain species of lapses as defined by those who have studied them. The classifica-

tion adopted is not a complete one, nor are the various classes mutually exclusive; but each is fairly definite. No misspelling has been counted in more than one class, though arbitrary judgment was necessary in many cases in making the decision as to which class a particular error should fall. The classification is adopted from the work of Bawden, Hollingsworth, Winford and others. The results of this classification are shown in Table II.

The writer is of the opinion that a great many misspellings which have been placed in one or other of these 11 classes are not real lapses at all, and that the analysis of lapses is at present not sufficiently exact to make such a classification as that attempted in the table of much value. The first three categories are obviously too wide in their implications. And yet with due allowance for the fact that an exact differentiation of lapses and errors of ignorance is not possible, the table does give evidence of the great amount of misspelling which is due to carelessness and inattention. If the classification had been extended to include errors due to the influence of auditory imagery, errors due to "internal speech" or "mental pronunciation," ellipses due to previous pronunciation of the same sound, and other lapse errors defined by Bawden, the number of misspellings which might be claimed as due to lapses would be a formidable majority of the whole.

3. *Critical Point.*—It is necessary, if the teaching of spelling is to be made efficient, to know not only what words are difficult but in what way they are difficult. Accurate knowledge of the common or "popular" misspelling in words usually misspelled is one of the clear paths to the saving of time and labor in the teaching of spelling. It is of the utmost importance for us to know what proportion of the aggregate misspellings of a students of a particular age is due to a single crux in the words he frequently misspells. The modern theory of the teaching of spelling rightly places great stress upon the anticipation and prevention of error and upon making the first impression clear and strong. But unless we know in what part of the word lurks the particular error we wish to anticipate and prevent, and unless we know what emphatic first impression we wish to give, how can this teaching be effective? Teachers have generally worked from purely supposititious foundations, as if this knowledge were intuitive; and have in many instances overlooked the real pitfalls in the words they present. It is clear that in anticipating and preventing error by emphatic first impression or in removing it when it has begun to grow, the first step is to be certain what that error is.

TABLE II.—NUMBER AND PERCENTAGES OF THE 10,497 MISSPELLINGS WHICH ARE ATTRIBUTABLE TO CERTAIN SPECIES OF "LAPSES"

	1	2	3	4	5	6	7	8	9	10	11
	The writing of one word for another (Gregory)	Substitution of a letter which has phonetic elements common with the required letter	Errors showing tendency to form familiar words or word parts	Errors resulting from the transposition of two adjacent letters	Errors due to the perseverance of an element already written	Errors due to the tendency to omit letters which require similar motor response	Errors due to the doubling of the wrong letter in a word containing a doubled letter	Errors due to the tendency to substitute a letter with similar visual elements	Errors due to the sense of having written an element	Errors due to anticipation of an element	Errors due to the omission of a last letter when the next has the same or a similar sound
Number.....	1396	1287	1133	468	441	379	342	227	190	177	39
Percentage.....	13.3	12.2	10.8	4.5	4.2	3.6	3.3	2.2	1.8	1.7	0.4

Totals 6079 misspellings, or 57.9 per cent of the total 10,497 misspellings.

Table III gives the number and proportion of misspellings which may be traced to a popular error in each word.

TABLE III

Total number of type misspellings of 775 words	Number of these misspellings which show for each word a single popular type	Percentage
10,853	8312	76.6

Thus out of a total of 10,853 type misspellings of 775 words, 8312 or 76.6 per cent are due to a single false form in the case of each word. In other words, in writing the form of these 775 words, the student is inclined toward a particular error. If that error can be forestalled, anticipated, or corrected, 76.6 per cent of the misspellings will disappear.

(*Concluded in March Issue*)

DATA ON THE TRUE-FALSE TEST AS A DEVICE FOR COLLEGE EXAMINATION

F. B. KNIGHT

State University of Iowa

Many competent instructors share the belief that the so-called "true-false" test now largely confined to mental alertness tests could be adapted to college examinations in specific subjects. If this adaptation could be made, a distinct gain in the technique of college instruction would be accomplished, for a clear saving of 10 to 90 per cent of the time now spent by the instructor upon the examination of his pupils would then be possible.

As far as the usefulness of the true-false test is concerned the crux of the problem pertains to reliability. *Does the true-false test really test?* Before drawing conclusions about the reliability of this type of examination, much more data must be available and more experimentation must be done. Gates published in this journal (June, 1921) data and excellent treatment of the data upon the reliability of the true-false tests as used in classes in Educational Psychology in Teachers' College, Columbia University. We submit further data based on the use of true-false tests in a college course in Physics.

In the winter of 1921, the Elementary Physics classes of the State University of Iowa were given a true-false test. The 182 cases ranged from freshmen in the University to seniors and graduate students.

Those were tested who had a class standing from A down to Condition.[1] Those who had failed the semester course were dropped at the end of the semester, and the test was not given until the week following. It was pre-supposed that those in the class had had High School Physics.

The test consisted of three types of problems. Some were statements which the students were to mark T, f, or U, depending upon whether they thought the statements were true, false or if they were uncertain about them. There were forty-three statements of this type, fifteen of which were based on context already studied by the class within the few months preceding the experiment and the

[1] *A* represents upper 5 per cent of work; *B* represents excellent work; *C* represents fair work; *D* represents passing work; *E* represents poor work; *F* represents failure; *Cond.* represents conditional work.

remainder, twenty-eight, were taken from the part of the class text dealing with light, which the class had not yet covered. Six were of the form of multiple response propositions, and the remaining fifteen were dissected equations, which latter division had been covered by the classes.

The following are examples of the test as given:

If statement is true put a *T* in column headed T.
If statement is false put an *f* in column headed f.
If you are uncertain put a *U* in column headed U.

	T	f	U
1. Light must fall upon the objects themselves if we are to see them.			
2. In order that a body may be seen light must pass from it to the eye, and usually this takes place along straight lines.			
3. No appreciable time is required for light to pass from one point to another.			
4. The velocity of light in water is less than in air.			
5. Electric waves have the same velocity as light.			
6. The principal focus of a mirror is that point where all rays parallel to the axis meet after reflection.			
7. It is only necessary to trace two rays from any point in the object to find by their intersection the position of the corresponding point of the image.			
8. It is possible by a continuous self-adjusting process for heat to be transferred from a colder to a hotter body.			

Of the several choices offered, check the truest one.

The reaction is { greater than the action. / inversely proportional to the action. / less than the action. / proportional to the action. }

The velocity of a body at the foot of a frictionless inclined plane depends only upon { the height of the plane. / the slope of the plane. / the length of the plane. }

The pitch of a tone depends upon the { amplitude of the vibrations. / particular manner of vibration. / quality of the vibrating body. }

Below are equations with important factors omitted.
Fill in each equation so that it will represent the fact.

1. $a = \frac{v}{t}$ when a is acceleration.
2. $r = l$ where r is the length of the right arm of the balance.
3. $h = l$ in an inclined plane if the supporting force P acts through the length l, while the weight W is only raised against the earth's attraction through a distance h.
4. $n = \frac{\quad}{2}$ if n is the frequency of the cord or the number of vibrations per second.

The only novel feature in the procedure of giving the test was that the examiner read each statement, commanded it to be marked and proceeded to read the next statement. This fostered immediate decision and discouraged any proclivity to borrow from one's neighbors.

The papers were then graded according to the percental error method of computation. (See Table VI, Appendix, Rugg's "Statistical Methods Applied to Education.") The sum of scores made by each individual on questions answered is his grade. After getting the grade of each one, an individual's standing in the group is easily determined.

The test was based upon two parts of the text; firstly, that covered by the students at the time of the experiment, and secondly, that part not yet studied but containing material the pupils' knowledge of which was due to high school study or incidental learning. We have then the relative ratings of students in three ways:

1. How each student stood in comparison with his class in an examination based on physics not studied in class.
2. How each student stood in comparison with his class in an examination based on physics ~~not~~ studied in class.
3. How each student stood in comparison with his class in an examination based on physics gained partly from commonly shared class study and partly from physics knowledge gained outside of class.

These three ratings were correlated (Pearson Product Moment) with the marks given by the Physics instructor for the term's work, which marks were, of course, entirely independent of the experiment. The semester marks were derived by the following procedure: The mean mark of three examinations, the mean of frequent short quizzes, and a mark for the laboratory work, all expressed in percentages were added together and divided by three. The resulting figure was the term work.

The correlation between the semester grades and that part of the true-false test based on material studied in class by all students was $+ 0.455 \pm 0.07$.

The correlation between semester grades and true-false test, studied and non-studied material, was $+ 0.394 \pm 0.07$.

The correlation between semester grades and true-false test, non-studied material, was + 0.107 ± 0.08.

The size of these correlations leads one to think that the true-false test based on subject matter studied in class is not related to grade marks because of general information or general intelligence factors in the way a mental alertness test would so correlate. The true-false test based on subject matter studied is peculiarly a test of that subject for if it were not, the correlations of true-false tests otherwise constructed should correlate as highly. They do not. It is certain then that there is a genuine relationship between Physics as studied in class and scores in a true-false test based on that material.

The further question is: *Does the true-false technique admit of a close enough relationship between work done in class and scores in the test to be useful?* We do not know how high the correlation between semester grade based on many factors and examination grade based on knowledge only *should* correlate.

We can only then compare the correlation between total grade and examination, old method, with the correlation between total grade and examination, true-false method.

Gates has shown that the true-false method in Educational Psychology courses stands up as well as does the examination grades gained from compositional examinations.

Our Physics data show a correlation of + 0.455 ± 0.07 between semester grade and true-false tests of knowledge. The correlation between semester grade and the final examination, old method, was in classes reported + 0.92 error negligible. It is evident that this + 0.92 correlation is enlarged because one-third of the semester grade is the examination mark itself which we are correlating with the examination mark. When the examination mark is taken out of the semester grade (and this seems fair because the examination is a test of Physics work—a composite of ground covered in the quizzes and of laboratory work) the correlation between the examination grade and semester work otherwise graded is + 0.645.

The true-false test correlates with semester work	+ 0.455
The written examination correlates with semester work	+ 0.645
The written examination correlates with true-false test	+ 0.576

When it is remembered that the section of the true-false test comprising work covered took only about eleven minutes, it seems fair to conclude that a more thorough true-false test including ingenious statements concerning laboratory technique can be expected to do as well, if not better, than written examinations with the sound advantage clearly on its side of saving the instructor's time.

This we hope to demonstrate shortly. The above data are reported further to substantiate Gates' faith in the usefulness of the true-false technique in college testing. Obviously it would be helpful for other experimenters to work with this method and report their findings.

Note.—Apart from the body of the article, I wish to call attention to an aspect of the data of statistical interest. In a true-false test on material about which the examined knew nothing, we would expect as many right answers as wrong answers by pure chance. Not every statement would be checked 50 per cent right and 50 per cent wrong, but the per cent of right and wrong answers would arrange themselves in a normal probability curve with 50 per cent right as the central tendency if enough trials were made. Then to get half the answers right on a true-false test would represent not knowledge of the subject, but the most probable operation of chance. Should not then the scale values of answers be built upon a table not from 100 per cent failing to 0 per cent failing but from 50 per cent failing to 0 per cent failing, as 50 per cent failing and more could be accounted for by chance?

The percentile error of true-false markings by 142 students on 43 statements was distributed as follows:

On matter not studied:

Percentile Error	Number of Statements
0–10	0
10–20	4
20–30	6
30–40	7
40–50	2
50–60	1
60–70	1
70–80	3
80–90	4
90–100	0

On matter studied in class:

Percentile Error	Number of Statements
0–10	0
10–20	3
20–30	2
30–40	2
40–50	1
50–60	2
60–70	2
70–80	1
80–90	2
90–100	0

As far as these data go, it seems that the fact that pure chance would warrant us to expect at least few percentile errors over 50 per cent need not concern us. The pupils know something about the test even if their knowledge makes for wrong rather than right responses. Score values made upon a table of 0 to 100 per cent error seems better than scores on a table of 0 to 50 per cent wrong.

IS THE RATING OF HUMAN CHARACTER PRACTICABLE?

(Continued from January)

HAROLD RUGG

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We have discussed one good measure of the validity of single ratings of character: The correspondence of ratings of "intelligence" with objective measures of it. In the army investigation there was another, a practical criterion of promise of success; namely, "appointment to a captaincy from civil life without previous military training or experience." Men in training camps were generally given officers' commissions of second lieutenant grade; less frequently were they made first lieutenants, very infrequently captains. Rarely indeed were they made majors. A careful canvass of thousands of officers' qualification records showed that most of the men appointed at once to captaincies or majorities had had military school training, or national guard training and experience. Three thousand men who had never had any such training or experience had been made captains from training camps. These we found in our search of the records. I assumed, therefore, that these men embodied in outstanding fashion the qualities demanded for success as officers in the army. Hence it appeared that such an appointment itself was an objective and most practical measure of the traits of the men. If the ratings are valid, our assumption runs, they should be definitely higher than the ratings of men who became captains after being second and first lieutenants.

I tabulated the ratings of 3000 "civil life" captains and of 6000 captains who had been lieutenants. The medians and first and third quartiles are given in Table XII. What do they show? They show clearly that the official ratings were not adequate measures of these officers' traits. The medians, Q_1s and Q_3s (irrespective of staff corp) for both groups of captains are practically identical. But with differences in median rating in the experimental group of 8.4 and 9.4 points respectively we find confirmation of our earlier comment that the careful construction and use of scales and the improvement in technique had made the "experimental" ratings more valid measures. As to how much more valid they were we are left in the dark. No attempt was made to treat the data by more refined statistical methods for it was felt that the measures and the treatment described in the

foregoing pages had thrown more light on the matter than these data could.

In the course of the investigation several hundred correlations were computed, for groups varying in number from 150 to 300, to show the relationship between ratings of different traits: Intelligence with personal qualities, with leadership, with physical qualities, and all the others with each other. I do not report these for I believe that the

TABLE XII.—MEDIAN, Q AND Q_3 OF TOTAL RATINGS GIVEN OFFICERS APPOINTED TO CAPTAINCIES FROM CIVIL LIFE WITHOUT PREVIOUS MILITARY EXPERIENCE, COMPARED WITH MEDIAN, Q AND Q_3 OF TOTAL RATINGS GIVEN CAPTAINS WHO HAVE BEEN FIRST AND SECOND LIEUTENANTS

	Captains, civil life			Other captains		
	Median	Q	Q_3	Median	Q	Q_2
Ordinance	67.5	60.64	74.85	67.7	60.9	75.9
Engineers	67.5	60.5	77.4	68.9	62.8	76.6
Quartermaster	71.01	63.51	78.7	71.9	64.3	80.9
Signal corps	68.5	59.8	72.4	69.5	62.6	77.8
Coast artillery	74.3	66.9	80.7	72.99	63.9	81.2
Infantry	75.48	65.48	81.74	75.12	66.78	82.92
Camp Taylor, October ratings	61.33	.....	.....	57.9		
Experimental group	69.8	.....	.....	61.4		

ratings were so inadequate as to make correlations computed from them of little interpretive value. Could I know the relative validity of the different judgments on a given person I am confident that a selection of ratings could be made and an average rating obtained which would be a valid measure of his traits. Unless that is done (as it is being done in a study we are now making in the Department of Educational Psychology of The Lincoln School of Teachers College) correlations between ratings should be ignored.

We have now reviewed the principal types of evidence that have been brought forward in connection with the practice of measuring our fellows' traits by means of single judgments obtained on point scales. Should we continue to place dependence on such measures of character? Most emphatically—NOT. We know of course from our general experience and from a study of the evidence I have set forth that *it is possible* to find raters whose discrimination is accurate and whose judgment of character will correlate very closely with objective

measures of it. Dr. Chassell found raters whose judgment correlated 0.7 with objective measures. But she found more whose judgments correlated 0.4 and 0.3 and 0.2 and 0.1 and 0.0. And the number of such is so large that we dare not use this method of measuring character, with the competency of raters as it exists today.

What, Then, Can We Do About It?

There are several things we can do about it. I name three and, I think, in order of increasing cruciality.

I. Average Several Judgments Made by Competent Judges

This is the first thing to do, by all means—increase the number of ratings on a person. *Obtain a mass judgment from good judges.* Discriminate carefully between judges and permit only perfectly competent people to rate. Assuming qualified raters, the reliability of a judgment increases directly with the square of the number of judgments. To double the reliability, take four times the number of judgments. The Probable Error of a single judgment is 0.6745σ; of two judgments it is 0.47σ; of three judgments 0.38σ; of four judgments 0.34σ.

Now the standard deviation of the best single rating of character we have yet been able to get in quantities on an 80 point scale is between 8 and 9 points. (As reported from this investigation the P.E. of a single rating is about 6 points.) Hence if it were possible to obtain four valid judgments on a person the P.E. of the average rating would be in the neighborhood of 3 points. The P.E. of the average of three ratings would be slightly more than 3 points. *This would insure that practically all averages of three or four judgments would locate a person within his proper fifth of the rating scale.*

But this presupposes that great care be taken to follow such a technique as was outlined on pages 485 and 486 of this report. In addition, I suggest that in ranking the persons from whom the scalemen are to be chosen, additional precautions should be taken to further objectify the process of ranking. Specifically, there should be made out for each person in the rank-list a "checking sheet" on which the subordinate elements entering into each group of qualities should be evaluated in 7 groups and a composite score entered for each person for that group of qualities. From these scores the rank order for each group of qualities will be of distinct value and the selection of scale-men very good indeed. I give next an illustration for physical qualities and intelligence to show the form of the suggested evaluation.

CHECKING SHEET
To be Filled for Each Officer Appearing on an "Original-list"

	1	2	3	4	5	6	7
	Very inferior	Inferior	Below average	Average	Above average	Superior	Very superior
Group Score 1–7							
I. Physical qualities:							
Physique							
Bearing							
Neatness							
Voice							
Energy							
Endurance							
Group Score 1–7							
II. Intelligence:							
Accuracy							
Ease in learning							
Ability							
(1) To grasp quickly the point of view of the commanding officer							
(2) To issue clear and intelligent orders							
(3) To estimate a new situation							
(4) To arrive at a sensible decision in a crisis							

II. ANSWERING QUESTIONS ABOUT TRAITS OF CHARACTER

Point scale rankings are made largely for general administrative purposes. They aid the parent and the school (or the teacher and administrator, if it is a teacher who is being rated) only very indirectly. The primary purpose of rating is diagnosis and improvement through conscious effort. An administrator wants to know definite facts about a teacher in employing or promoting him. "Is he loyal?" "Does he work well with others?" "Is he physically strong?" "Is he on the job?" etc. The parent wants the school to discover particular traits in his child and deal with those so definitely as to contribute to their improvement. To what extent: "Is he cheerful?" "Is he

honest?" "Is he shy?" "Is he conceited?" "Is he industrious?" "Does he stick to a job?" "Is he a chatter-box?" "Is he sensitive to beautiful things?" "Does he play fair?" "Does he work with the team?" and so on.

Now the school is responsible for discovering the answers to these questions about the pupil and the supervisory staff about the teachers. The experience of school people leaves no room for doubt that they *can* be answered—not in points with weighted credits, not in rank order or even in 7 or 5 groups. That refinement is not desired especially. After all the practical need is: In what traits is this person conspicuously deficient? Which ones should be consciously developed—which ones suppressed? For it is a fundamental postulate of the current educational order that the complex social and dynamic qualities can be made to respond to training. And the most effective method of laying one's fingers on the sore spots of a person's personality is to question keenly and thoroughly about it. We have already commented on the need for resorting only to thoroughly competent judges.

What one really wants is the child's personality profile, sketched through the answers to definite questions about particular phases of it. A very good picture, indeed, can be given of a child by merely the process of checking those questions, in a list of say fifty like the following, which the rater happens to be able to answer. Certainly the composite of three or four such judgments on a child would sketch his "personality," "temperament," "character," rather fully and helpfully. It would give a definite diagnosis and a practical lead for training. This tentative list of questions is now being answered about each pupil in The Lincoln School of Teachers College. The answers will be the principal basis of letters written to the parents of the children describing the child as we see him and suggesting methods of training in which school and home can cooperate.

ILLUSTRATIVE QUESTIONS TO BE ANSWERED ABOUT A PUPIL'S TRAITS. CHECK + TRAITS ABOVE AVERAGE TO A MARKED DEGREE; CHECK − TRAITS BELOW AVERAGE TO A MARKED DEGREE

1. Is he cheerful?
2. Does he have a sense of humor?
3. Is he neat and tidy about desk and clothes?
4. Is he honest?
5. Is he dependable?
6. Is he unselfish?
7. Has he self-control?

8. Has he initiative?
9. Is he shy?
10. Is he a good loser?
11. Is he self-confident?
12. Is he conceited?
13. Is he careful with books, pencils, etc.?
14. Is he punctual?
15. Is he truthful?
16. Is he sensitive to criticism?
17. Does he take responsibility for his own acts?
18. Is he obstinate?
19. Does he excuse his own faults and mistakes?
20. Does he abuse privileges?
21. Does he demand more than his share of time and attention?
22. Is he sensitive to beautiful things?
23. Does he stick to a job until it is finished?
24. Does he use his leisure time advantageously?
25. Is he a bluffer?
26. Is he industrious?
27. Is he suppressed?
28. Does he consider the rights and feelings of others?
29. Does he cooperate?
30. Is he courteous?
31. Is he a snob? (Does he consider himself superior to others?)
32. Does he like to tease?
33. Is he rough in his play?
34. Does he lead on the playground?
35. Can he handle people well?
36. Does he take an active part in group activities?
37. Does he take his share in group activities?
38. Is he quarrelsome?
39. Is he interested in what others are doing?
40. Is he popular in his own group?
41. Does he obey school rules?
42. Does he respect authority?
43. Can he organize his ideas effectively?
44. Does he understand explanations and directions quickly?
45. Does he have ability to concentrate?
46. Does he work independently?
47. Does he apply his own experience and thought to the subject at hand?
48. Does he have good habits of work and study?
49. Does he ask intelligent questions?
50. Does he express his ideas well ?

A Second Method of Checking Pupils' Traits.—Another classification of traits and form of questioning is given herewith. This form is more definitional in character and specifies more carefully the situations on which the performances of the pupil are to be rated. It, too, implies simply a three-group rating. "Is he high or low—*i.e.*, conspicuous for the presence or absence of the trait?" If not ignore his record or check it "mediocre," "average" or what-not. Examples of this type of questioning for teachers and for students are given herewith. Either or both of these two cards have been in use in about 75 school systems since 1919. The more direct and simple form of questioning, referred to earlier is just being experimented within our school. Comparative data on the two types are not at hand now but should be before the end of the school year.

Certainly a definite recommendation can be made however:

Analyze specific qualities in your pupils or teachers. Aid your analysis by the direct answer to definite questions about particular performances. Don't attempt to refine the judgment by assigning points on a scale or classifying persons in 7 or 5 groups. Merely check those traits in which the person is conspicuous. Deal with his personality in terms of this diagnostic analysis. Get several judges to answer the questions on each person. Be positive that the judges are thoroughly competent to rate and let them rate only on those traits about which they are in no doubt.

This then is what I would do if I were compelled today to secure judgments on pupils or teachers. The occasion will be rare indeed when the point-scale rating will be needed in practical school work with pupils. In scientific work there will be frequent need for "point ratings." In such cases no rating should be used that is not the average of at least three independent ratings by competent judges and, in my judgment, made on a scale as objectified as the man-to-man comparison scale when constructed by the methods suggested.

III. Needed: A Scientific Analysis of Personality and Objective Tests of the Social and Dynamic Traits

Study the data of this investigation as you will, one conclusion presses insistently—the complex traits of character must be measured objectively, not judged. Certainly public schools will find it administratively difficult, if not impossible, to secure three independent competent ratings on either a pupil or a teacher. For diagnostic and training purposes helpful analyses *can* be made by question schemes like those outlined. But for the advancement of the science of education and the better fitting of people for their life work and play we need to analyze character in great detail and to measure it objectively. The measurement of the dynamic personal and social traits stands today where the measurement of intelligence did 15 years ago—on a purely subjective basis. Twenty years of laboratory measurement of specific functions preceded a decade of important synthetic work. Since Binet's original synthetic scale of 1908 we have moved rapidly forward in the objective measurement of general intellectual ability, through the betterment of individual tests and the initial construction of group tests for measuring intelligence.

But "personality," "character," "temperament," "disposition" —the fundamental complex attributes and their component dynamic traits—we have not even analyzed into their constituents, let alone

A SELF-DIAGNOSIS AND IMPROVEMENT CHART

I. SKILL IN TEACHING	Low	Aver.	High
To what extent:			
Does he know the subject matter of his own and related fields:			
1. In subjects like history, geography, etc., does he make effective use of material outside the text book			
2. Does he relate lessons to material in other fields and use illustrations outside his own subject (*e.g.*, mathematics and science)			
Does he select subject matter effectively for class reading and discussion			
Are his aims of teaching clearly defined			
Does he give evidence of having:			
1. Formulated clearly his aims of teaching, as shown by his written statement of aims and outcomes			
2. Planned his lessons specifically to carry these out			
3. Distinguished clearly between (*a*) "formal skill" (either in manual or academic subjects), (*b*) "information" and (*c*) "problem solving" as proper outcomes from his class work			
4. Given pupils clear ideas of the purposes of lessons			
Is he skillful in conducting the class discussion			
(*a*) Resourcefulness in organizing a discussion and in "thinking on his feet"			
1. Is he fertile and quick in taking advantage of pupils' questions			
2. Are his questions systematically planned, yet spontaneously given			
3. Does he express himself clearly			
(*b*) Skill in conducting "drill" exercises			
1. Does he make use of economical, "timed," drill-devices (such as Courtis' Practice Exercises, etc.)			
2. Does he properly subordinate drill to clear exposition; that is, keep a proper balance between drill and "development"			
(*c*) Ability to "develop" new phases of the work			
1. Are lessons well related to previous ones			
2. Is material "organized"			
3. Do lessons show the use of material in the solution of present or future problems:			
(*a*) In his subject			
(*b*) Outside his subject			
(*d*) Ability to secure class participation in the recitation			
1. Do all pupils in the class take part in the discussion			
2. Do the pupils question each other and conduct the class independently of his formal direction			
(*e*) Skill in making the assignment			
1. Was it an attempt to teach pupils how to study the lesson			
2. Was it more than mere formal announcement of the number of pages in the text, etc.			
3. Is its scope and purpose clearly recognized by pupils			
Has he insight into "how children learn"			
1. Does he keep the discussion within the pupils' comprehension			
2. Does he endeavor to discover pupils' difficulties by keeping records of errors and studying these			
3. Does he adapt discussion to individual differences in pupils			
Summary rating on skill in teaching			

II. SKILL IN THE MECHANICS OF MANAGING A CLASS	Low	Aver.	High
To what extent—			
1. Does the class work proceed smoothly (without artificial interruptions and transitions from one kind of discussion to another)			
2. Do the pupils attend naturally and spontaneously to the work of the lesson			
3. Does order, or discipline inhere in the work (not maintained by compulsion nor suppression)			
4. Is routine, as passing material, moving to the blackboard, etc., economically and systematically organized			
5. Is material and equipment in the room effectively arranged			
6. Does he pay attention to the details of heat, light and ventilation			
Summary rating			

III. Team Work Qualities	Low	Aver.	High
To what extent—			
1. Does he cooperate with other teachers in school activities (committee work, Parent-Teacher Association, etc.)			
2. Does he contribute to faculty meetings			
3. Is he loyal to the administration and to other teachers			
4. Does he suggest plans for group improvement of the school			
5. Does he shoulder responsibility for his own acts			
6. Do pupils go to him voluntarily for advice and conference			
7. Does he go out of his way to advise and help students			
8. Does he acquaint himself with pupils' home conditions where it is wise			
9. Does he participate in community activities outside the school			
10. Are his records and reports in on time and in complete form			
Summary rating			

IV. Qualities of Growth and Keeping Up-to-date	Low	Aver.	High
To what extent—			
1. Does he read professional literature—books, journals, etc.			
2. Does he participate in and contribute to the discussion of educational meetings (teachers' association, etc.)			
3. Does he take extension courses, attend summer sessions, etc.			
4. Does he experiment with new methods in teaching which others have suggested			
5. Does he invent and experiment with new methods of teaching			
6. Does he heartily cooperate in investigational work in which various schools participate			
7. Does he participate on committees of associations in his own subject			
8. Does he contribute to educational literature			
Summary rating			

V. Personal and Social Qualities	Low	Aver.	High
To what extent—			
1. Does he attract people to him (*i.e.*, is he interested primarily in what others are doing)			
2. Does he meet people easily			
3. Does he recognize the importance of trimness in dress and general personal appearance			
4. Is he "fine-grained" (*i.e.*, is he sensitive to social proprieties)			
5. Does his impression of his own ability operate to handicap his effectiveness			
6. Is effectively aggressive in conversation and conference			
7. Is he tactful in dealing with pupils, colleagues and patrons			
8. Does he "eventuate," *i.e.*, does he carry through projects which he starts			
Summary rating			

Self-improvement Through Self-rating

To the Teacher.—Rate yourself on each quality on this form. It will be a first step in self-improvement. It is important that you stand high in these qualities.

To the Principal or Superintendent.—Let the teacher rate himself on each question at least once each term. Self-analysis is the first step in self-improvement. To analyze human qualities well, one needs a definite and detailed guide. For effective teacher rating, both teacher and administrator should rate and confer on specific qualities which make for good teaching. A valuable file of the administrator's analyses of his teachers can be kept in the office.

make adequate tests for them. Probably the two objectives will be attained together—by a scientific analysis of the components of character and temperament we shall arrive at a tentative basis for making tests of the dynamic traits; by setting up tests and by correlating scores upon them with practical life criteria we shall refine our analyses of the complex products. It appears therefore that we should bend our efforts to making a scientific analysis of personality and to developing tests for the social and dynamic traits.

At least it helps to know that we are actually embarked on the adventure of trying to measure the more elusive characteristics of human personality. Crude beginnings have already been made; preliminary feelings around for the basic controls of conduct, likewise rough measures of their elements. Two illustrations can be considered briefly in closing this discussion—a discussion in which we have gradually been brought to the recognition that it is futile to depend longer on subjective estimates of character.[1] The first is an attempt to measure the constituents of will-temperament—to draw the "will-profile." The test appears in forms adapted to both individual[2] and group[3] testing. Ream has modified Downey's original test and has used it in prognosing the ability of salesmen. He finds a distinctly close relationship between total scores on the test and success as salesmen.

Downey is not interested in a composite measurement of "personality" or "temperament;" rather in an analytical "profile" of the person's component traits. An illustration will show what comes out of her testing. I have taken this from her "Manual of Directions."

Speed of Movement VI-1	Resistance to Opposition XII
Freedom from Load II-1, 2; VI-1, 2	Finality of Judgment XIII
Flexibility VIII	Motor Inhibition VII
Speed of Decision I	Interest in Detail IX
Motor Impulsion X	Coordination of Impulses V
Reaction to Contradiction XI	Volitional Perseveration VIII-2

PROFILE X. Profile X is that of a man who has held successfully a number of important executive positions. He is, in addition, an effective public speaker and possesses great dramatic talent.

[1] Downey, June E.: "Downey Individual Will-temperament Test." World Book Co., Yonkers, N. Y.

[2] Downey, June E.: "The Will-temperament and Its Testing." World Book Co.

[3] Ream, M. J.: "A Group Will-temperament Test." (Test secured from author, Carnegie Institute of Technology, Bureau of Personnel Research.)

His profile suggests, in general, the type of the successful administrator, especially with reference to the high scores for speed of decision, finality of judgment, freedom from load, resistance to opposition, and motor impulsion in conjunction with high motor inhibition.

The high score for flexibility and the medium one on reaction to contradiction (tactful response) indicate social pliability and suggestibility which increase X's social assets, but are of dubious value in his business life.

The low score on interest in detail is not a serious defect, since X is in a position to turn over to subordinates the execution of many of his projects. It goes, however, with a tendency to generalize on insufficient grounds. The low score on volitional perseveration is probably a real weakness, although X's dramatic gift makes it possible for him to achieve through imitation what others work out through prolonged trial and error.

For those who do not know Miss Downey's conception of what the different tests measure, I quote a page from her manual.

"Speed of Movement: Speed of movement relative to the size of person and age; whether a person naturally moves quickly or slowly.

"Freedom from Load: Tendency to work at one's highest speed without external pressure; little tendency to relax speed; quickness in warming up to a task.

"Flexibility: Ease and success in readjustment; capacity to modify one's routine reactions. A very high score probably indicates some finesse in the handling of personal relations, or dramatic ability.

"Speed of Decision: Quickness in reaching a decision or conclusion. A slow reaction here may be due to caution or conservatism in weighing the elements involved in a situation or be caused by one's being sidetracked by irrelevant matters or by a rambling procedure.

"Motor Impulsion: Impetuosity and energy of reaction. The ease with which brakes or inhibitions are removed and also the tendency to an explosive reaction when the brakes are actually off.

"Reaction to Contradiction: This refers to the degree of confidence with which one maintains his opinion against contradiction. The reactions range from an aggressive attitude in which the burden of proof is thrown on the person who does the contradicting down to complete failure to assert one's own opinion.

"Resistance to Opposition: The vigor with which one reacts immediately to a blocking of one's purpose. It grades from a strenuous reaction, to complete passivity in the face of opposition.

"Finality of Judgment: Tendency to think a matter through and abide by one's decision. A moderate time may be given to revision in the interest of accuracy or as a provision against error in recording decisions. A low score characterizes an individual who keeps reopening a question and who shows vacillation in action since his judgment shifts with each shift in attention. My most extreme record comes from a man who in changing gears while driving an automobile wavers so long that the need for a shift is often over before he has decided what to do.

"Motor Inhibition: Capacity to keep in mind a set purpose and achieve it *slowly*. It involves power of motor control, imperturbability, and patience.

"Interest in Detail: Attention to details. This trait is not equivalent to accuracy, which usually carries an implication of power of keen analysis. One may possess great capacity for detail and yet lack penetration in the selection of details. Care for detail is more evident in execution of a plan than in cleverness in making a plan.

"Coordination of Impulses: Capacity to handle a complex situation successfully without forgetting any of the factors involved. This trait is probably allied to keeping one's head in a confusing situation, as in learning to drive an automobile, when the clutch, throttle, gear-shift, and brake must all receive attention.

"Volitional Perseveration: Absorption in a task; willingness to keep 'plugging away' at it because the examinee sets up a goal for himself."

In the Lincoln School of Teachers College we are carrying on a study of the dynamic traits and their measurement. In the course of it we are evaluating the existing tests, the Downey and Ream tests included. We will report the results of this evaluation later. It should be pointed out in passing that Miss Downey uses principally one means of measurement—motor coordination as exhibited through handwriting done under different conditions. To date Ream's brief study is the only one reported in which total scores on such tests are correlated with actual success in a life activity.

One other lead is being followed in measuring the dynamic traits—that of obtaining a direct record of actual performance in some practical life activity. Voelker's analysis[1] of the function of ideals and attitudes in social education and his tests for *trustworthiness* have supplied new examples. He has made a careful analysis of the rôle played by ideals and attitudes in the control of conduct. Taking the "ideal" or "trustworthiness" as the objective of a course of "scout" training, he measured results by a series of fourteen tests. "Trustworthiness" is measured by such tests as the following. Voelker's report shows that the scout training effected marked development in the growth of the ideal set up as the goal.

1. *The Puzzle Test.*—Can the subject be trusted not to steal an object which appeals to his interest and to his cupidity?

2. *Lost Article Test.*—Can he be trusted to make a sincere effort to return a lost article to its owner?

3. *Duck-on-the-Rock Test.*—Can he be trusted not to cheat in a game?

4. *Memory Test.*—Will he cheat in an examination?

5. *Overstatement Test.*—Will he refuse credit which is not due him?

[1]Voelker, Paul F.: The Function of Ideals and Attitudes in Social Education. Teachers College *Contributions to Education*, No. 112.

6. *Suggestibility Test.*—Will he stick to a point when he knows he is right?

7. *Let-Me-Help-You Test.*—Will he refuse help in solution of a puzzle when he has been instructed to solve it alone.

8. *"A" Test.*—Will he resist distracting interests?

9. *Profile Test.*—Can he be trusted not to peep when he is placed on his honor to keep his eyes closed? etc.

These examples of the measurement of the dynamic traits then, crude as they are, mark the beginning of a new stage in the analysis of the controls of conduct. Of two things the student of the scientific study of education can be sure: First, single point ratings of character are practically valueless; second, the fundamental social and dynamic traits play a large rôle in the control of the conduct of different individuals. They can be and are being measured. As Thorndike has well phrased the matter: "Whatever exists, exists in some amount." Let us go vigorously about the carrying through of the scientific analysis of "personality," "character," "temperament" and the objective measurement of their basic contributory traits.

TIME SAVING IN THE STANFORD-BINET TEST

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The clinical examiner whose work requires that he examine large numbers of subjects either in the schools, an out-patient clinic, or an institution, finds himself continually pressed for time in the handling of his cases. It seems pretty well agreed that an hour is not too long for a complete examination with the Stanford revision, and if this is accompanied by some of the performance and school subject tests, as the best practice now requires, the time necessary for one individual is exceedingly long. To meet this difficulty several abbreviated scales have been devised,[1] but these have not yet found general favor among examiners. In the work of the Psycho-Educational Clinic in the Graduate School of Education at Harvard University there have been developed several points in the technique of administering the Stanford Revision which aid materially in reducing the time and effort necessary, and which this paper proposes to set forth.

If it can be said that there is one principle at the basis of the several points to be enumerated, this principle is the utilization of the "set" or mental attitude of the child, so that when he is started on one kind of test he is carried through as high as he can go before another field is attacked. For instance the repetition of digits occurs in the year III, IV, VII, X, XIV, and XVIII. When the directions for this test are first given to the subject in, say, year IV, it is very easy to go onto the longer numbers without intervening tests. This obviates the necessity of repeating the directions when a similar test is to be given in the upper years, and thus saves considerable time, especially if the range of subject is a wide one. It must be remembered, however, that, as Dr. Terman points out,[2] the younger children will, in many cases, not be able to give sustained attention to the same kind of a test for more than two or three minutes at a time. The practice in this respect must be guided by the age of the subject and the manner in which he

[1] Terman gives a short scale in connection with the Stanford Revision. An abbreviation almost identical with this was used in the army. See also *Psychological Clinic*, Vol. XI, 1917–18, p. 210, "A Brief Binet-Simon Scale," by E. A. Doll. Also, *School and Society*, Vol. X, No. 259, Dec. 13, 1919, "An Abbreviated Mental Age Scale for Adults," by Lincoln and Cowdery.

[2] "The Measurement of Intelligence," p. 196.

is responding. If he succeeds easily with the first set of numbers in any group, it is undoubtedly safe to go on to the next higher year in which the test occurs. When, however, there are signs of drooping interest and lagging attention it is better to shift quickly to some other field.

The method of giving tests in groups has another advantage. After one or two such groups have been given, it is usually possible to place the subject very accurately on the scale, and thus save time by determining at the outset the upper and lower limits beyond which he is not likely to go. It is our experience that beginners in testing waste considerable time in giving tests which are either much above or much below the abilities of the subjects with whom they are working.

Among the groups or series of tests which we have found most useful are the following:

Comprehension	Similarities	Digits Forward	Vocabulary and Definitions
IV, 5	VIII, 4	III, alt.	V, 4
VI, 4	XII, 8	IV, 6	VIII, 5
VIII, 3		VII, 3	VIII, 6
X, 5		X, alt.	X, 1
		XIV, alt.	XII, 1
		XVIII, 3	XIV, 1
			XVI, 1
			XVIII, 1

Drawing	Digits Backward	Repeating Sentences	Differences
VI, 4	VII, alt.	III, 6	VII, 5
VII, 6	IX, 4	IV, alt.	XIV, 3
VIII, 1	XII, 3	VI, 6	
X, 3	XVI, 5	X, alt.	
XII, 4	XVIII, 5	XVI, alt.	

Some further points may be noted in connection with the use of these groups. It has been found advisable to give the "digits backward" tests before the "digits forward," and that the two series should be separated by other tests. This is because the latter is the more natural reaction, and thus a good bit easier. If it is given first it is sometimes impossible to break up the "set" of the subject so that he can give the digits backward. A similar consideration holds in the case of the similarities and differences. The latter seem to be much easier, so the similarities should be given first, and several tests should intervene before the differences are given.

The advantage in the drawing series is that once the child is given the pencil he will do all that is to be done with it at once, thus saving

the time which is ordinarily consumed in giving him a pencil and taking it away several times.

Much time may be gained or lost at the beginning of the examination when the examiner is getting into the good graces of the child. Most beginners make too lengthy and ponderous a business of getting "rapport." In almost every instance if the child is greeted with a smile and asked if he would like to do some puzzles there will be little difficulty. Much depends on the test with which the examination is opened. We make it an almost invariable rule to begin with the pictures. Nearly every child is interested in them, and will make some response to them. Furthermore, the picture test is a great help for the preliminary placing of the subject, for it receives credit in year III, VII, or XII according to the kind of reaction.

Let us see how this scheme would work with a typical case. Suppose a nine year old subject is given the examination. He is shown the pictures, and describes all except one, in which there is a little interpretation. Thus he scores plus in VII, 2, but minus in XII, 7. We then pass to the group of comprehension questions, beginning in the middle of the series with VIII, 3. He passes this, and also, X, 5. The next series will be the memory for digits backward, in which he gets four digits in IX, 4, but misses the five at XII, 6. The vocabulary test should come next, and in this he gets 32 words, thus passing VIII, 6 and X, 1, but failing XII, 1. It now has become reasonably clear that the subject's mental age is somewhere near the nine or ten year level. The remaining tests at these years should now be given, further exploration being unnecessary.

It is, of course, highly desirable to get as complete a record of the child as possible. However, it becomes necesary at times to sacrifice somewhat in thoroughness for the sake of saving time. In the tests where a number of responses are required it is unnecessary to go on giving the various items after the subject has failed in so many items that he cannot possibly receive credit for the test. In the case of the Absurdities (X, 2) for instance, after two have been missed the test cannot be passed, so it may be marked immediately with a minus sign, and may be left for something else. Other tests in which this procedure may be used are found in every year.

It is also unnecessary to go on giving further items in a test after the subject has done enough correctly to give him credit. In the Definitions test at VIII a child has to give only two out of the four required definitions in order to receive credit. If he responds cor-

rectly to the first two there is nothing gained by giving him the third and fourth, and if he gets two out of the first three there is no need to give him the last one. A case of this sort where considerable time is likely to be saved occurs at XIV, 3, the differences between the president and the king. Many children get two of these differences immediately, but cannot find a third, or can discover it only after long study.

The use of the tests in this manner requires that the examiner be thoroughly conversant with the location of the various tests, and that he be able to score the responses without reference to the directions, except in the occasional case of the uncommon reaction. It is also absolutely necessary, if the full benefits of this method are to be gained, that the materials for the test be arranged in a convenient way and that the examiner be completely familiar with this arrangement.

A YEAR OF THE EDUCATIONAL RESEARCH COMMITTEE

SAMUEL P. CAPEN

American Council of Education

The Educational Research Committee of the Commonwealth Fund held its first meeting approximately a year ago. Its members believe that the educational public will be interested in a brief report of the transactions of the Committee and of the educational research now going forward for which it stands sponsor.

In the summer of 1920 the Commonwealth Fund, at the suggestion of Professor Max Farrand of Yale University, then the Fund's General Director, appropriated $100,000 for the purpose of encouraging educational research. It was understood that if satisfactory results were obtained from the expenditure of this amount during a single year, similar appropriations would be made annually for a period of five years. The policies to govern the expenditure of the appropriation were left to later determination.

The General Director organized a Conference of persons experienced in conducting or directing educational research, which met for three days in October, 1920, and recommended a plan of procedure to the Directors of the Commonwealth Fund. The plan proposed a departure from the current practice of philanthropic foundations in the conduct of educational research. Instead of setting up a more or less permanent agency with an expert personnel, it was recommended that the Commonwealth Fund subsidize individual investigators of proved capacity or of great promise to undertake limited researches. The Conference further indicated certain large fields in each of which numerous painstaking scientific studies are needed. These are: School revenues; the evaluation of school subjects and the determination of standards of accomplishment in them; reorganization of the administrative units of the public educational system; the establishment of standards and methods of supervision. The Conference also recommended that the Commonwealth Fund appoint a committee to consider and recommend projects for research and to assume executive responsibility for supervising the carrying on of such researches as might be subsidized by the Fund.

The Directors of the Commonwealth Fund accepted the Confer-

ence's recommendations and appointed as the Educational Research Committee, Leonard P. Ayres, Samuel P. Capen, Lotus D. Coffman, Ellwood P. Cubberley, Charles H. Judd, Paul Monroe and Frank E. Spaulding. Professor Max Farrand, the General Director of the Fund, was designated to act as Chairman. Since the organization of the Committee Professor Spaulding has been obliged to resign and President James R. Angell has been appointed in his stead. During Professor Monroe's absence in the Orient, his place has been taken by Professor E. L. Thorndike. Professor Farrand has resigned as General Director of the Commonwealth Fund but remains as Chairman of the Educational Research Committee.

The Committee's general policy has followed closely the lines of the recommendations made by the Conference above referred to. During the year in which it has been in existence, a considerable number of requests for subventions have been presented to it. These have been exceedingly varied. Some of them have come from persons of no reputation as investigators and have been very vaguely defined. Some have been presented by distinguished scientists but called for the support of investigations which could hardly be classified as educational research. Certain requests have been made for the subsidization of special departments or of individuals in colleges or universities, without specification of the research projects to be supported by the subsidy. Other requests submitted by persons of known competence have sought subventions for projects carefully defined and budgeted. After a preliminary review of these heterogeneous askings, the Committee came to several conclusions which have since met with the approval of the Commonwealth Fund. In the first place, it decided to recommend no subventions to departments or individual workers in institutions for the carrying on of the regular research activities of such departments or individuals. Secondly, it determined to recommend the support of only those projects which were carefully defined both as to objectives and as to methods and which were accompanied by an itemized estimate of the cost of the undertaking. Thirdly, it decided for the present to recommend no subsidy for a longer period than one year. Within that time the investigation must either be terminated or a substantial report of progress submitted. Fourthly, the Committee recommended that wherever possible the Common wealth Fund should have its financial dealings with the institution or organized agency to which the investigator is attached, rather than with the individual.

Since this last mentioned policy of the Committee has aroused considerable interest in various quarters, the form of contract which the Committee has devised is here quoted:

The institution will accept grants for educational researches from the Commonwealth Fund and will be responsible for their disbursement under the following agreements:

1. Salaries of officers who are relieved of regular duties to engage in researches are to be charged against the research grants at the rate of the salaries paid by the institution to such officers for regular teaching and administration, except in cases where explicit exceptions are arranged in advance.

2. The institution will disburse the grants under the following arrangements: On acceptance of the grant by the institution, the Commonwealth Fund shall deposit with the business officer of the institution a sum suitable to launch the investigation and determined on the basis of the size of the grant; in the case of large grants this sum will amount in general to 20 or 30 per cent of the grant. When the initial sum is approaching exhaustion the business officer of the institution shall request a second deposit and shall render, as soon as possible, a full account of expenditures of the first deposit. In this manner there shall be successive deposits and successive accountings of the grant until the total amount has been used.

In disbursing the funds the institution will assume administrative responsibility for all payments of salaries. It will approve all appointments of assistants. It will make payments on the order of the investigator for supplies and equipment, and traveling expenses, and will render accounts on the latter items, showing the approval of the investigator.

At the termination of the grant it is understood that any unexpended balance shall revert to the Commonwealth Fund, that final disposition of such supplies and equipment as are at hand is subject to the order of the Commonwealth Fund. If at the time of settlement property of any kind is left at the institution, it is understood that it becomes permanently a gift to the institution.

If the grant is made with specifications as to the amounts which are to be used for salaries, traveling expenses, and supplies, the institution will limit all expenditures to the classes of items specified and will allow transfers from one class to another only on explicit permission of the administrative authorities of the institution, but it is understood that readjustments within a single class of expenditures may depart from the original terms of the budget.

3. The person responsible for the investigation will be required to file a report on the investigation both with the administrative officers of the institution and with the Directors of the Commonwealth Fund at stated intervals.

It will be noted that the Commonwealth Fund does not propose to pay a bonus to persons who undertake educational research at its expense. The salaries paid investigators are to be the same as the salaries they would receive from the agencies which employ them. The Commonwealth Fund merely makes it possible for an investigator to carry on particular studies in which he is especially interested, and

if necessary to be temporarily relieved of his regular institutional duties without pecuniary loss.

The Educational Research Committee has held three regular meetings. Two of these were devoted to the assignment among the most promising projects of the appropriation made for the academic year 1920–21. At the third meeting held in October, 1921, a portion of the appropriation for the academic year 1921–22 was assigned. A brief account of the projects which have been supported may be of interest. It will be noted that these all fall within the first three of the major fields of study indicated in the initial report of the Conference.

Educational Finance

The Commonwealth Fund has joined with three other educational foundations in appropriating to the American Council on Education a sum sufficient to carry forward a comprehensive investigation of educational finance in the United States. The program for public education laid down in legislative enactments and state constitutions will be examined to determine to what extent communities are already meeting the public desires. Effort will be made to investigate the cost of the program designated by the public. The possibility of effecting economies will be studied. The relation of educational expenditures to expenditures for other governmental purposes will be worked out. Intensive studies will be made in individual states that may be regarded as typical and the most important facts covering the country as a whole will be assembled and collated. The American Council on Education has appointed a special commission to take charge of this investigation.

An appropriation has also been granted to Columbia University for the preparation under the direction of Professor George D. Strayer of an initial report on city school budgets.

Measures and Standards of Achievement in School Subjects

Appropriations have been made to Columbia University for the conduct of two investigations under the direction of Professor E. L. Thorndike. The first investigation deals with the possible reorganization of the teaching material in Algebra and the methods of presenting that subject. What is known about the psychology of Algebra is to be collected, gaps in that knowledge are to be noted and filled by appro-

priate investigations so far as possible, especially such as are important in possible changes in curricula and methods.

The second investigation relates to vocational guidance. It is designed to prepare standard tests of ability to continue school work, of ability to learn to do clerical work, and of ability in the mechanical trades and factory work. These tests are to be for use with boys and girls of approximately fifteen or sixteen years of age. It is expected that they will be so formulated as not to require the services of a psychologist to give them.

Two appropriations have been made to the University of Chicago, one for the use of Professor Judd and assistants in conducting a laboratory study of reading, and the other to Professor Morrison for devising a series of tests designed to measure the progress of pupils in French under ordinary high school instruction. In the investigation of reading, laboratory methods are used which teachers cannot employ. The movements of the eyes of adults and children are photographed under different conditions while they are reading various kinds of passages. It is expected that in this way the processes involved in good and bad reading and in mature and immature reading may be determined. Once the characteristics of various kinds of readings are ascertained it is possible to turn over to teachers many useful suggestions about the handling of pupils.

The French investigation is designed to throw light upon the effectiveness of grammatical as compared with non-grammatical methods in learning to read the foreign language; the pupil's command of grammatical usage in functional form compared with his knowledge of grammatical principles abstractly stated; and the relation between the ability to get the meaning of a series of French words stated apart from any context and the ability to react to the meanings of the same words when they are included in a piece of discourse.

An appropriation was made to be spent by the Chairman of the Educational Research Committee on a preliminary conference on the social studies. The conference outlined the problems in the reorganization of teaching material in the social studies and on the basis of its report the Committee has recommended further appropriations for a historical review of the social studies and an evaluation of current experiments in new methods of presenting these subjects.

An appropriation has been made to the Board of Education of Winnetka, Illinois, for the conduct of a study under the direction of Superintendent Carleton W. Washburne of periodical and reference

literature to determine the commonly known and referred to historical and geographical material, with a view to the possible reorganization of the school material for teaching these subjects.

A grant has been made to Leland Stanford Junior University for a study, under the direction of Professor L. M. Terman, of gifted children in California. At present such children remain unidentified and submerged in the school's masses. The usual curriculum methods leave their intellectual and volitional resources largely undeveloped, sometimes possibly perverted. It may be more important to discover and to give appropriate educational opportunity to a single gifted child than to prevent the birth of a thousand feeble-minded. The investigation proposes to secure certain basic facts with reference to approximately one thousand school children of exceptionally superior intellectual ability, and to follow up the records and achievements of those pupils over a period of years.

A subsidy has been granted to the New York Association of Consulting Psychologists for a study partly similar in its objects to that of Professor Terman's. It is proposed to give intensive psychological examinations to students in a group of public schools in New York in order to determine the ability of children as they enter school, classify them as to ability and follow them up by re-examinations and through the services of a home worker, and thus to lay the basis of possible modifications of courses of study for the benefit of intellectually superior children, and that the less able children may be given better opportunities for development.

Reorganization of the Administrative Units of the Public Educational System

The Fund has made a grant to the University of Minnesota to be under the direction of Professor L. V. Koos in studying and critically evaluating the present status of the junior college movement. There are now upwards of 300 of these institutions and they are multiplying rapidly. It is the purpose of the study to show their relations to secondary education, to the prevailing four year college of liberal arts, and to professional education. Such a study it is believed should have large influence in determining the trend of future efforts toward educational reorganization at the level of the lower years of the college course.

The Educational Research Committee believes that there should be

many more appeals for subventions than have thus far come to it and that requests should be made by a much wider range of institutions. Indeed the conditions of the grant and the policy of the Committee are so flexible that any first-class project which can be clearly defined and budgeted is likely to receive favorable consideration. The Committee meets three times a year, in the fall, in the early spring, and in the early summer. The next meeting will be held March 4, 1922. Projects to receive consideration must be in the hands of the undersigned at least two weeks before the meeting of the Committee.

EDUCATIONAL PSYCHOLOGY AT THE PRINCETON MEETING OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

ARTHUR I. GATES

Teachers College, Columbia University

Despite the fact that the visiting psychologists were divided between the session of Sections I and Q of the A. A. A. S. at Toronto and the Thirtieth Annual Meeting of the American Psychological Association at Princeton, at least 150 members appeared at the latter convention to participate in a thoroughly profitable session. In contrast with the meeting of a year ago, which was characterized by evidences of unrest, the Princeton meeting, as the result, probably, of the contentment following readjustment during a year of productive work, was marked by a cooperative good will and an enthusiasm for the solution of many of the traditional problems of the fundamental sort.

The outstanding feature of the meeting was the special session on "Psychology in its Social Relations," at which representatives of the medical, psychiatrical and psychological sciences freely discussed their mutual problems and misunderstandings. At this meeting, papers were read by R. C. Cabot (Harvard), S. Paton (Princeton), S. I. Franz (Government Hospital for Insane, Washington, D. C.), and C. M. Campbell (Boston Psychopathic Hospital), followed by informal discussion lead by W. McDougall (Harvard), F. L. Wells (Boston Psychopathic Hospital), R. S. Woodworth(Columbia), and C. E. Seashore (Iowa). The session on "Abnormal Psychology" was a continuation of the exchange of opinions among workers in these related fields.

Half-day sessions were arranged under the following titles: (1) General and Experimental; (2) Clinical; (3) General; (4) Mental Measurement; (5) Experimental; (6) Psychology in its Social Relations; (7) Industrial and Educational; and (8) Abnormal Psychology. There was considerable overlapping in the content of the several programs. Of the fifty papers presented, twenty-seven bore rather directly on specific problems of interest to Educational Psychology; of these, thirteen were concerned with tests or measurements, ten with learning, and four with the effects of fatigue, drugs, etc. on mental or motor efficiency.

There was abundant evidence in the content of formal papers and in the informal discussions that psychologists are keenly aware of momentous deficiencies in hypotheses that have been regarded, for purposes of application, as established principles. The warnings voiced with vigor at the Chicago meeting a year ago were obviously expressions of deeply rooted conviction. Generally speaking, the warmest approval, at Princeton, was given to those papers which presented investigations seeking for evidence on certain persistent problems of fundamental import.

Papers Dealing with the Psychology of Learning

Among the studies of a fundamental problem whose relation to Educational Psychology is intimate, was one described in a paper by Warner Brown of the University of California. A large group of subjects practiced a variety of functions over a period of thirteen weeks. The results of this study disclosed a striking inadequacy of our technique for measuring improvement and the vagueness of our knowledge of the general mechanics of learning. While the correlation between initial and final status in a function is positive, many exceptional cases of a striking character were found and marked irregularities in the course of improvement suggested the need of more refined analysis. Improvement in one function does not generally indicate a similar improvement in other functions, nor at other stages in the same function. In a similar study, G. S. Gates (Barnard) found that improvement was extremely variable; that improvement over the first half of the practice period is not substantially correlated with improvement during the second half of the practice period, with initial or final status, in the same function, nor with improvement in others. Final ability in one function gave correlations of about 0.4, with final ability in others, these correlations being considerably higher than correlations between initial scores in the several functions. W. S. Hunter, University of Kansas, found correlations from 0.17 to 0.45 depending on the measures adopted, between ability in a pencil maze and scores on the Otis Intelligence test, whereas, in the case of rates, performances in maze tests were so variable that such a concept as "general learning ability" could not be justified. Such studies disclose the inadequacy of our knowledge concerning the capacity to learn, the uncertainty of the principles upon which educational guidance has been conducted,

and the necessity of more thorough research in the whole field of "practice."

That emphasis upon speed rather than on accuracy results in the most expeditious and effective learning was the thesis of a paper by Grace E. Bird, Rhode Island State College. "Rapid drill from the beginning 'focalizes' and initiates habit without superfluous behavior." This fact was said to obtain in the case of certain industrial processes, in adding and in reading. This is probably a matter in which generalization would be risky; and the need of research in each of the various school functions is suggested.

The effect of motivation in the form of a wage bonus on the improvement of abilities among hand compositors as reported by H. D. Kitson, Indiana University, was an increase in output of sixty-seven per cent. The results of this study parallel the outcome of measurements of school subjects in which the comfortable mediocrity of efficiency in reading, writing, etc. usually found in the later grammar grades may be greatly surpassed as the result of the provision of an incentive to improvement.

A. S. Edwards, University of Georgia, found that instruction of school children in methods of study resulted in improvement in their work. Such instruction must be specific and apply directly to the tasks then being undertaken in the school room. A course of study in how to study is being constructed for use in the grades. This worker quite justly asserts that more than mere external motivation is essential to effective learning. Definite knowledge of what to learn, and how to learn it, is needed.

A. I. Gates, Teachers College, reported a study, the purpose of which was to analyze reading and spelling into their constituent elements, to devise a technique for the diagnosis of backwardness in these functions, to ascertain the causes of such backwardness and to try out certain types of remedial treatment.

Papers on Mental Tests and Measurements

The continuation of interest in the field of mental testing was evidenced by the fact that nearly one third of the papers dealt with measurement. The number of new tests presented was smaller than usual but the interest displayed in the critical evaluation of instruments now available was widespread.

L. M. Terman, Stanford University, described an extensive project now under way in California, for the discovery and study of approxi-

mately 1000 children of very superior mental ability. The study will embrace measurements of the important mental, physical, social, and temperamental traits, as well as a thorough survey of educational attainments, heredity, home surroundings, health, etc., and all told, promises to be the most extensive and thorough study of genius ever undertaken.

Bird T. Baldwin presented data concerning the relation between mental and physical growth based on consecutive measurements of individuals; a product of the admirable research, which is being conducted at Iowa by Baldwin and L. Stecher. These workers have found it possible to predict the stature at sixteen years of age from the measurements secured at ten with a PE of approximately 2.5 centimeters. The IQ can be predicted over a similar period with a PE of estimate of 6.3 points. In general, the curves of growth for physical and mental traits are very similar. The importance of physiological development in its bearing on mental, social and educational achievement, was stressed.

A new and expeditious method of computing multiple correlations was described by H. A. Toops, of the Institute of Educational Research of Teachers College, together with the general technique to be employed in the construction of scales for general occupational groups as contrasted with scales for specific vocations.

The several papers just mentioned disclose a situation in the progress of research which marks a new era; the organization of institutions whose personnel and equipment are entirely devoted to researc While the progress of the last two decades achieved by workers who s main task—that of instruction—has been great, the present decade with its organizations equipped wholly for research promises an unprecedented accomplishment.

A comparison of superior duplicate twins (IQs 183 and 181) by Arnold Gesell, Yale University, was a most interesting and convincing illustration of the infinite detail with which heredity may operate. The striking similarity of physical characteristics, even to the identity of slight peculiarities of teeth, of skin pattern or the appearance of a small mole, was paralleled by the correspondence of the results from a battery of educational and mental tests. This paper gave an admirable example of the thoroughness with which human traits may now be measured when the instruments of several sciences are employed.

A number of studies of the predictive value of tests or of groups or individual differences disclosed by them will be briefly summarized.

A. M. Gordan, University of Arkansas, correlated four well known tests of general mental ability with several criteria, finding some of them so specialized in their predictive value that particular exercises often gave higher correlations, *e.g.*, with arithmetic, than the whole scale. The need of tests for native ability in each of many school and other functions was suggested. David Mitchell, New York City, gave results obtained from the measurement of the general mental ability of 1000 children of pre-school age. Ada H. Arlitt, Bryn Mawr College, found a slight superiority in IQ of white over negro children which increased with age. Joseph Peterson, Peabody College, employing an ingenious multiple choice test, found a marked superiority of white over negro children, particularly in the scores representing higher mental operations.

C. S. Yoakum, Carnegie Institute of Technology, found certain items of the Downey Will-temperament test as modified by M. J. Ream, to be indicative of success in salesmanship, whereas tests of general mental ability, aside from assigning a minimum essential, had little predictive value. That certain specific reactions to ethical discrimination tests selected from the Stanford-Binet, are of value in predicting susceptibility to delinquency, was stated by Augusta F. Bronner of the Judge Baker Foundation.

Laura M. Chassell, Ohio State University, found that grades received in the preliminary examination for the degree of Ph. D. and ratings of the Doctorate thesis gave mean correlations of approximately 0.6 with various criteria of success in later work. Judgments based on letters of recommendation gave correlations with success ranging from 0.01 to 0.70, depending on the author of the letters. Correlations between moral traits and general mental ability, both determined by judgments of acquaintances, average approximately 0.5 according to an extensive investigation among college students by Clara F. Chassell, Teachers College.

Studies of the Effects of Fatigue, Drugs, Etc.

H. L. Hollingworth, Columbia University, in the course of an extended investigation of the effects of alcohol, discovered significant facts concerning the relation of proficiency to the susceptibility to the damaging effects of the drug which was suggestive of a promising line of research in pharmaco-psychology. It was found that those subjects who were most proficient in the tasks at the start, and those who improved the most during the practice showed the least susceptibility

to the drug. Since the various functions used constitute the equivalent of a measure of general mental ability, the implication is that the more intelligent adults have a superior general bodily equipment—"quality of the organism"—which is not only more adaptable to the environment in a general way but to such specific influences as alcohol.

Three papers on aspects of fatigue were read. F. C. Dockeray, Ohio Wesleyan University, constructed an apparatus after the pattern of the Dunlap low oxygen tests used in the Air Service, which betrays the periods of diminished attention occurring in states of fatigue. Buford Johnson, Johns Hopkins University, employed tests of the sugar content of the blood and urine as checks in an investigation of mental and motor work. The results were not conclusive. Florence R. Robinson, University of Chicago, persuaded a group of students to go without sleep for thirty hours, some of them for forty-eight hours, for the privilege of taking a series of mental and motor tests at intervals. The loss of efficiency was no greater than the amount of gain due to practice although "feelings of fatigue" were reported.

The address of the President, Margaret Floy Washburn, following the Annual Dinner, was an able defence of "Introspection as an Objective Method." This address will be printed in full in the *Psychological Review*.

The most important transaction of the Annual Business Meeting was the adoption of policies with regard to the technique of issuing licenses as "consulting psychologists" and the determination of qualifications for such licenses. The recommendations of the committee appointed in 1920 were, in all essentials, adopted.

The following officers were elected for the year 1922. President: Knight Dunlap, Johns Hopkins University. Members of the Council: Warner Brown, University of California, and F. L. Wells, Massachussetts General Hospital. Representatives of the National Research Council: J. McKeen Cattell, and E. G. Boring, Clark University. Twenty-three were elected to membership in the Association.

The meeting in 1922 will be held in Boston. F. L. Allport, Harvard University, was elected local representative of the Executive Committee.

PROGRAMS OF COMING MEETINGS

TENTATIVE PROGRAMS ARRANGED FOR OPEN MEETINGS OF NATIONAL ASSOCIATION OF DIRECTORS OF EDUCATIONAL RESEARCH, TUESDAY, WEDNESDAY, AND THURSDAY AFTERNOONS, FEBRUARY 28, MARCH 1, MARCH 2, IN THE GOLD ROOM OF THE CONGRESS HOTEL, CHICAGO

I. Tuesday. Mr. Harold Rugg, Presiding

PROGRAM OF RESEARCH IN MENTAL AND EDUCATIONAL MEASUREMENT

1. Results Obtained by Classifying 2000 Kindergarten Children by Means of the Binet Test. Charles D. Dawson, Public Schools, Grand Rapids, Michigan.

2. Research vs. Propaganda in Visual Education. Frank N. Freeman, University of Chicago.

3. Evaluation of Group Intelligence Tests. Raymond Franzen, Public Schools, Des Moines, Iowa.

4. A Study of Reading and Spelling with Special Reference to Disability. Arthur I. Gates, Teachers College, Columbia University.

5. The Anticipation of Meaning as a Phase of Reading Ability. C. T. Gray, University of Texas.

6. The Development of Certain Types of Reading Habits. Guy T. Buswell, University of Chicago.

7. Intelligence and Progress Through the Grades. Arthur W. Kallom, Boston Public Schools.

II. Wednesday. Dr. Lotus D. Coffman, Presiding

PROGRAM OF RESEARCH ON THE CURRICULUM AND SCHOOL PROGRESS

1. Curriculum Construction in an Experimental School. Otis W. Caldwell, Lincoln School of Teachers College.

2. Comparison of Reading, Writing and Pre-school Spoken Vocabularies. Ernest Horn, University of Iowa.

3. The Collection of Unrecorded Subject Material. W. W. Charters, Carnegie Institute of Technology.

4. Relation of Measurement to Pupil Progress and Curriculum Research in Reading. Laura Zirbes, The Lincoln School of Teachers College.

5. Temperament and Attitude as Factors in School Progress. Clara Schmitt, Bureau of Child Study, Chicago Public Schools.

III. Thursday. Charles E. Chadsey, Presiding

PROGRAM OF RESEARCH IN SCHOOL ADMINISTRATION

1. A New Supervisory and Administrative Organization for Public Schools. P. C. Packer, University of Iowa.

2. Educational Measurement as a Key to Individual Instruction and Promotions. Carleton W. Washburne, Superintendent of Schools, Winnetka, Illinois.

3. Qualities Related to Success in Elementary School Teaching. Frederic B. Knight, University of Iowa.

4. The Sociological Character of the Secondary School Population. George S. Counts, Yale University.

5. Methods of Investigation in the Field of Educational Finance. George D. Strayer, Teachers College, Columbia University; Director of Educational Finance Inquiry.

FOR MEMBERS ONLY

TWO MEETINGS OF THE ASSOCIATION WEDNESDAY MORNING AND THURSDAY MORNING, MARCH 1 AND 2. ROOM TO BE ANNOUNCED, PROBABLY IN CONGRESS HOTEL

I. Wednesday morning meeting. General Topic: A Clearing House of Educational Research Now under Way throughout the Country.

Informal five minute talks will be made presenting succinctly examples of research in all fields of education; mental and educational measurement, curriculum studies, learning investigations, classification of pupils, school finance, school buildings, programs, promotions, etc. The president desires to receive from each member of the Association a brief outline of the research which he will report at this meeting. We should have not less than 20 such reports. Persons have been designated in the different research and training institutions to make reports of research under way in these places. The meeting is organized for the purpose of acquainting us with what our colleagues are doing, to clear our minds as to the direction in which we are moving and to set forth the strength and weaknesses of our present research practice.

II. Thursday morning meeting. The second closed meeting will deal with the preparation and publication of products of educational research. Eight or ten papers and reports will be prepared to discuss crucial issues of educational writing. The purpose of the conference is two-fold: (1) the improvement of educational writing; and (2) the encouragement and stimulation of research workers to publish in effective channels, and in appropriate form, the results of their research.

FOR MEMBERS AND INVITED GUESTS

III. The Annual Dinner, 6.30 Thursday evening. Place to be announced later.

1. Presentation of two honorary members elected at the last meeting: Dean James E. Russell, Teachers College, Columbia University, and Dr. G. Stanley Hall, President Emeritus of Clark University.

2. Annual Address of Retiring President: The Methods of Science in Educational Research. Harold Rugg, The Lincoln School of Teachers College.

PROGRAM OF SOCIETY OF COLLEGE TEACHERS OF EDUCATION

CHICAGO MEETING—1922

FIRST SESSION—Monday, February 27, 2:30 P.M.

PROGRESS AND PRESENT STATUS IN THE SCIENTIFIC STUDY OF EDUCATION

1. Mental Tests. S. S. Colvin, Brown University.
   Discussion led by F. N. Freeman, Chicago University.
2. Statistical Method. H. O. Rugg, Columbia University.
   Discussion led by ———————————
3. Subject Tests. B. B. Buckingham, Ohio State University.
   Discussion led by ———————————
4. Educational Determinism. W. C. Bagley, Columbia University.
   Discussion led by ———————————

SECOND SESSION—Tuesday, February 28, 2:30 P.M.

COLLEGE INSTRUCTION IN EDUCATION

1. The Place of the Project Method in College Courses in Education. W. H. Kilpatrick, Columbia University.
   Discussion led by ———————————
2. The Case for the Case Method. L. O. Cummings, Harvard University.
   Discussion led by H. Updegraff, University of Pennsylvania.
3. The Needs of the Educational Practitioner. Raymond W. Sies, University of Kentucky.

Discussion led by ———————————

4. Business Meeting.

THIRD SESSION—Wednesday, March 1, 2:30 P.M.

THE ORGANIZATION OF COLLEGE DEPARTMENTS OF EDUCATION

1. The Distribution of Functions of College Departments of Education and of Normal and Training Schools. J. W. Withers, New York University.
   Discussion led by Livingston C. Lord, Charleston, Illinois.
2. The Relations of Departments of Education to Other Departments of the College or University. M. E. Haggerty, University of Minnesota.
   Discussion led by R. M. Ogden, Cornell University.
3. Standards for Professional Approval. W. S. Gray, University of Chicago.
   Discussion led by ———————————
4. The Relations of College Departments of Education to State and City School Systems. G. D. Strayer, Columbia University.
   Discussion led by ———————————

NOTES ON ARTICLES IN EDUCATIONAL PSYCHOLOGY IN CURRENT ISSUES OF OTHER MAGAZINES

REPORTED BY CECILE COLLOTON

Department of Educational Psychology, The Lincoln School of Teachers College

Educational Tests

The Minnesota English Composition Scales; Their Derivation and Validity M. J. Van Wagenen. Educational Administration and Supervision, 1921, December 481–499. Description of composition scales for exposition, description, and narration, evaluated independently for thought content, sentence and paragraph structure, and mechanical perfection. Data given to prove marked degree of stability between scales.

The Use of Educational Measurements in the Training Department of the State Normal School, Ellensburg, Washington. Mary A. Grupe and Elsa M. Smith. Educational Administration and Supervision, 1921, December 517–526. The efficiency of student teachers as shown by results of standard tests. Follow-up work in careful readjustment of instruction and grouping on the basis of tests.

The Quality of Freshman Composition. G. C. Brandenburg. School and Society, 1921, December 17, 579–584. Scoring freshman composition at Purdue University by five judges and by the Hillegas Scale. Comparison of results.

A Series of Standardized Diagnostic Tests for the Fundamentals of Elementary Algebra. Harl D. Douglass. Journal of Educational Research, 1921, December, 396–403. A full description of a test of ten exercises for each of four fundamentals of elementary algebra. Emphasis is placed on accuracy.

Scale of Attainment No. 3.—For Measuring "Essential Achievement" in the Third Grade. Luella Pressey. Journal of Educational Research, 1921, December, 404–412. Description of a scale designed to measure the "fundamental promotion subjects" of Grade III; spelling, reading, and arithmetic. Results and first norms of the scale.

Comparing the Efficiency of Special Teaching Methods by Means of Standardized Tests. Samuel S. Brooks. Journal of Educational Research, 1921, December, 337–346. Seventh article by Superintendent Brooks on the general topic "Putting Standardized Tests to Practical Use in Rural Schools." Comparing new and old teaching methods in particular environments under controlled conditions.

A Threefold Experiment in High School English. R. H. Jordan. The English Journal, 1921, December, 560–569. Description of three tests: "(1) An attempt to determine the power of the students in interpreting and evaluating ordinary reading matter of contemporary interest and dignified style; (2) an attempt to determine the ability of pupils to classify verse according to merit; (3) a study of

the ability of the pupils to use the mechanics of the English language properly in simple composition." Discussion of results of the tests.

Intelligence Tests

Procedure Following a Testing Program. I. N. Madsen. School and Society, 1921, Dec. 24, 600–605. Tabulation of responses to a questionnaire sent to city schools in Idaho. Twenty-one school systems reported. Discussion of results of the various testing programs.

Porto Rico School Children and the Holley Picture Completion Test. Walter S. Monroe. School and Society, 1921, Dec. 24, 617–618. Comparison of test scores on the Holley Picture Completion Test of American and Porto Rico children. Close agreement.

Intelligence Tests and the Marks of Scholarship Men in College. J. A. Clement and W. E. Smythe. Educational Administration and Supervision, 1921, December, 510–516. An investigation of the intelligence test scores and marks of scholarship students in De Pauw University. Evidence shows the value of psychological tests in the selection of superior students.

Unreliability of Individual Scores in Mental Measurements. John L. Stenquist. Journal of Educational Research, 1921, December, 347–354. A plea for more thorough testing of individual pupils with data showing variations of performance in successive tests.

Miscellaneous

The Effect of Kinaesthetic Factors in the Development of Word Recognition in the Case of Non-readers. Grace M. Fernald and Helen Keller. Journal of Educational Research, 1921, December, 355–377. Seven case studies of children of normal mentality who could not read after three or more years in the public schools.

Backward Boys. Alice M. Clark. Pedagogical Seminary, 1921, December, 391–394. Illustrations of eminent men who were considered dull in boyhood.

A Study of 1000 *Errors in Latin Prose Composition.* C. W. Odell. School and Society, 1921, Dec. 31, 643–646. Classification of errors in Latin Prose and discussion of causes.

An Analysis of the Content of Six Third Grade Arithmetics. F. T. Spaulding. Journal of Educational Research, 1921, December, 413–423. Third Grade arithmetics show little standardization of amount of material covered and wide variation in the proportions of examples and problems presented. Favorable tendency toward problems dealing with human activities.

The Reliability of Prediction of Proportions on the Basis of Random Sampling. Ben Wood. Journal of Educational Research, 1921, December, 390–395. An experiment conducted sub-rosa by skeptics proves the reliability of predictions based on random sampling.

An Experiment Carried on with the Pupils of the Russell Pre-vocational Room. J. H. Vorhees. Journal of Educational Research, 1921, December, 378–389. Need for wider range of manual instruction for boys who are pedagogically retarded rather than the present emphasis on academic instruction. Eleven graphs show the present situation in Detroit with regard to such boys.

NEW PUBLICATIONS IN EDUCATIONAL PSYCHOLOGY AND RELATED FIELDS OF EDUCATION

1. *An Elementary Textbook in Educational Psychology.*—The author of this introduction to educational psychology[1] has in mind the beginning student in normal schools or colleges of education. It is uncommonly lucid in exposition, and comprehensive in general outline. It covers the topics of the traditional text of psychology and includes sections that represent a distinct innovation. The intention was to write a book "from the functional point of view though not leaning to behaviorism in its extreme form."

There is little likelihood that the author will be accused of "behaviorism in the extreme form" but it is quite likely that readers may feel that the author's point of view is not so thoroughly dynamic as the introduction would lead them to expect. The chapters on sensation, perception, memory and imagination, conception, thinking, attention, feeling and emotion and voluntary action are of the traditional sort, although ably and clearly written. The treatment of native activities and drives is relegated to a clearly subordinate position. The laws of associations are discussed, subordinate to the topics of mental imagery, in terms of the traditional recency, vividness, and primary distinctions. The treatment of learning is somewhat scanty.

Aside from the chapters on traditional topics there is one on language, one on individual differences and one on mental development; all of them good.

A distinct innovation is the inclusion of a chapter on each of the four main school subjects: reading, writing, spelling and arithmetic. These chapters are brief but remarkably suggestive introductions to the scientific work in these special fields. In an appendix samples of tests of general mental ability, achievement in school subjects, etc., are given.

As regards the underlying system, the book is conservative; there is little effort to develop new hypotheses, little special effort to make the facts conform to particular theories, little bias with reference to

[1] Cameron, E. H.: "Psychology and the School." New York: The Century Co., 1921, pp. XIV. + 339.

any of the several schools of psychology. On the whole, the writings of Judd and Freeman have been drawn on with relative abundance. Because of its clear and concise treatment, this book will doubtless become widely used by those who desire a brief treatise on traditional psychology along with a conservative introduction to contemporary educational psychology.

A. I. G.

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2. *A Study of Primary Children's Reading Interests.*[1]—The significance of the interest factor in primary reading materials has not been duly recognized by those who select and supply reading matter for use in the early grades. Before entering upon a discussion of her own investigation, Dr. Dunn summarizes previous studies along this line, showing how interest was inferred by various investigators. Evidence presented in a discussion and analysis of the content of twenty-nine school readers shows the lack of accepted criteria for inclusion and the need for careful studies along this line. The tabulations indicate that poetry constitutes fifty-one per cent of all selections. The actual relation between poetry and prose would perhaps be more truly set forth by using the page as a unit, in view of the fact that so many rhymes and verses are very brief. The same method would perhaps have the opposite effect when applied to fictitious stories, which, with their repetitions, are reported to make up forty-five per cent of the total number of selections. Of stories intended for belief, the investigator found only "a trace." While some primers were found to contain no formal drill material, others contained practically little else. There was further disagreement as to the grade placement of materials.

After a brief survey of the constitution of primary reading material during the past century, Dr. Dunn outlines her method of inquiry and presents the results. Thirty-one selections were submitted in pairs to one hundred and ninety-five classes. The children expressed their preference by ballot. A number of adult judges ranked the selections for twenty listed qualities. Because most samples are complex combinations of a number of interest factors, the method of partial correlations was used to eliminate each one of the nine most

[1] Dunn, Fannie Wyche, Ph. D.: "Interest Factors in Primary Reading Material. New York; Teachers College, Columbia University *Contributions to Education*, No. 113, 1921, p. 70.

significant factors from each of its fellows. This method of statistical analysis is carried into further detail, until the reader wonders whether the unanalytical and spontaneous story choices of children may be legitimately analyzed according to a scheme of qualities of which the adult judges alone were aware, and whether this is not a doubtful basis for the statistical method employed. The data points to the conclusion that children do not care for what adults consider humour and that verse form makes no definite appeal to children. "Adultness, style and other-sexness seemed to repel rather than attract." The leading positive interest factors for children in general are surprise and plot. "Animalness is raised to a level with surprise for boys and conversation shown to be of minor positive value for girls."

The study points to the need for further investigation and appraisal. "The neglected fields of fact . . . all need development. Not a crude rehearsal of ill-selected fact, but skillful composition incorporating salient interest-producing elements. There are few such books within the reading ability of primary children but there need be many more, opening doors into many fields. No field to which a dawning interest points should be excluded."

L. Z.

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3. *Tests*[1] *of Trade Proficiency and Their Adaptation to Educational Use.*—In order to settle debatable issues with reference to vocational schools, means for measuring the human product of such institutions must be used. Adaptations of the army trade tests may solve the problem by facilitating comparison of students with men in the trades. Various methods of testing are compared and critically evaluated with reference to possible educational applications and a discussion of the technique of trade test construction takes up the possibility of predicting probable success or trade capacity and traces the development of prognostic measures. The methods used in an experiment in vocational guidance at the Manhattan Trade School for Girls, New York City, are discussed in this connection.

The final chapter gives observations on the narrowing effect of industrial training, the over-estimation of trade skill and intelligence

[1] Toops, Herbert Anderson, Ph. D.: Trade Tests in Education. New York: Teachers College, Columbia University *Contributions to Education*, No. 115, 1921, pp. VI + 118.

possessed by the typical journeyman and the relation of general education to proficiency in a trade. The use of self-administrative performance tests in trades is recommended as a means of providing incentive to learn. The investigator cites their use in two engineering schools. The obvious advantages of the plan are that the person tested can see how his performance compares with the norm or with any point on a scale without the loss of interest due to delayed scoring. The one-word-answer form of test is also self-scorable and this feature has been found to have a big appeal to the interest of students. These methods should appeal to the teacher because of their manifest economy in scoring time, and the fact that the pupil is convinced that his score is free from the effect of personal bias.

In the appendix there appears a chart for finding probable errors of Pearson *r*'s, and a selected list of fifty references.

L. Z.

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4. Professor Scott has written a plea for the recognition by employers of the individuality of their employees. The book contributes little to our knowledge of educational psychology, but the authors would probably be last to insist on making this a research contribution.

Mental tests in industry serve their greatest usefulness, not as a method of selection and elimination, but as a means of classification and adjustment of intelligence to difficulty of job.

Among office employees, distinctly higher average mental alertness scores for men than women indicate an occupational selection of the more capable men and less capable women in office work rather than a basic sex difference.

In simple, routine jobs the questionnaire method reveals that those men who are most badly retarded in school have the least "amount of dissatisfaction;" while, in jobs requiring high intelligence, those most retarded in school have the most dissatisfaction. These results—valuable if they can be substantiated—may be complicated by the questionnaire fallacy. The amount of dissatisfaction which one has for his work cannot be measured reliably by one or two questions. At best, the results will vary with the way in which the question is framed.

Some may be offended by the plain speech quoted to illustrate

[1] Scott, Walter Dill, and Hayes, M. H. S.: Science and Common Sense in Working with Men. New York: The Ronald Press, 1921, p. 154.

psychological principles. The pure psychologist may complain that the term "instinct" has neither been defined nor used according to his liking. The applied psychologist may wonder at the omission of charts, diagrams and statistics in a book dealing with tests and their applications; yet, were the book written otherwise, its message to employers, individuality of human beings and the great variability of human traits, might not be as widely distributed to those untrained in statistical methods. A realization by employers of the importance of individual differences, the authors feel, will do much to secure those industrial adjustments which exact measurement and many statistics may fail to bring about. Why should not someone now write a test primer to carry to the employee the message of individuality,—that message which has had such far-reaching beneficial effects in education?

HERBERT A. TOOPS.
Institute of Educational Research, Teachers College.

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5. *The Growth of Intelligence.*—This problem is much disputed at the present time and the appearance of a monograph[1] on the subject is, therefore, very timely. The usual assumption has been that the rate of gain decreases gradually up to some age between fourteen and sixteen, at which point growth seems to stop. The author of this monograph, however, finds that the rate of growth is constant from nine to fifteen, and that there is no indication of cessation at this age. Other data, which he describes, suggest to him that growth continues up to eighteen at least. These conclusions are based upon three annual re-tests of 171 children, using a battery of eighteen tests. In addition the results of other workers are made use of to support his conclusions. The actual curves from his own data show a slightly decreasing rate of gain for memory functions, complex functions, and informational functions, but a constant rate of gain for simple functions. The decrease in the first three groups is assumed to be due to the selection of the cases tested, and, therefore, a constant rate is supposed to be truer to the facts. The author does not say why this assumption should not also apply to the simpler functions, in which case we should have an increasing rate of gain from age nine to age fifteen. The correlation between mental traits measured at a two-year interval is found to be high, thus strengthening our belief in the constancy of

[1] Brooks, F. D.: Changes in Mental Traits with Age. Teachers College, Columbia University *Contributions to Education*, No. 116, 1921.

the IQ and "indicating that these abilities are a relatively permanent endowment." The author finds no evidence of adolescent or pre-adolescent spurt in development as suggested by other workers, although he points out that irregularities in mental growth may occur in individual cases. Such irregularities can only be discovered by repeated tests of the same individuals over a long period of time. The monograph contains a very good digest of previous experimental work relating to this topic. An abstract of the monograph by the author himself has already appeared in the December, 1921, issue of this Journal.

R. PINTNER.

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6. *A Careful Comparison of Achievement in Rural and City Schools.*[1] The rural schools have suffered by comparison with city schools in a number of recent investigations. This investigator contends that comparisons on the grade basis do not take account of some factors which are pertinent in determining the comparative efficiency of city and country schools. He cites great differences in length of school year and the differences in grade standards due to varying conditions under which instruction is carried on, and also calls attention to the necessity for taking retardation into account. He proposes to measure the progress of *all* pupils in terms of some unit common to all schools and suggests that progress made by pupils between the ages of seven and twelve, or ten and thirteen is a definite, universal measure. Standard Tests were used and the rural schools of Madison County, Kentucky, were compared with other town and country systems. The results seem to indicate that the six month schools are far less efficient than the nine month schools and that the latter compare very favorably with city schools.

L. Z.

II. Brief Editorial Notices of Mental and Educational Tests Recently Published

1. ENGEL, ANNA M. *Detroit First-grade Intelligence Test.* World Book Company, 1921.

A group examination to test general intelligence and to aid in the proper classification of children entering the first grade. The Ex-

[1] Frost, Norman: A Comparative Study of Achievement in Country and Town Schools. New York: Teachers College, Columbia University *Contributions to Education*, No. 111, 1921, p. 70.

aminer's Guide contains complete directions for administering and scoring the tests. The examination may be administered in from twenty to thirty minutes. Norms have been determined on the basis of 5000 Detroit pupils. Specimen set, containing 1 Examination, 1 Guide and 1 Record Sheet, 15 cts. postpaid. 25 Examination Booklets, including 2 Record Sheets, $1.50 net.

2. Miller, W. S. *Miller Mental Ability Test.* World Book Company, 1921.

A group intelligence test for grades 7 to 12 and for college freshmen. Time required—thirty to forty minutes. Norms have been established on the basis of 6000 high school pupils. Specimen set containing 1 Examination, 1 Key, 1 Manual, and 1 Age-Grade Score Sheet, 30 cts. net. Package of 25 examination booklets with Key, $1.00 net.

3. Downey, June E. *Downey Individual Will-temperament Test.* World Book Company, 1921.

A series of tests for determining the temperamental traits of an individual through motor reactions. No apparatus is required. No time limit. Norms are available. Specimen set containing 1 Test, 1 Record Card and a Manual, 20 cts. postpaid. Package of 25 Examination Booklets $1.00 net.

4. Ream, M. J. *Group Will-temperament Test.* Bureau of Personnel Research, Carnegie Institute of Technology, Pittsburgh, Pennsylvania, 1921.

A modification of the Downey Scale for use with groups of subjects. Time required—thirty minutes. No apparatus required.

5. Bureau of Educational Measurements and Standards, Kansas State Normal School, Emporia, Kansas, 1921.

Price List and Circular of Information on all intelligence and achievement tests, published by the World Book Company and distributed by this Bureau.

6. World Book Company. *Bibliography of Tests for Use in Schools.* 1921.

A booklet containing the titles, authors, and publishers of 294 intelligence and educational tests. Price 10 cts.

III. Announcement Concerning the Psychological Index

The Index for the Year 1920, No. 27, is now available, Psychological Review Company, Princeton, N. J. This is the *Annual Bibliography of the Literature of Psychology and Cognate Subjects* for the year 1920. Edited by Madison Bentley and Coleman R. Griffith.

IV. Brief Editorial Notices of Recent Educational Publications

1. Alexander, Carter and Theisen, W. W. *Publicity Campaigns for Better School Support.* (School Efficiency Monographs.) World Book Company, Yonkers, N. Y., 1921, pp. VII + 164. Paper.

A handbook for school superintendents and boards of education which gives the technique used in many successful school campaigns for increased support. Describes how to organize a campaign staff, who is to be reached by the campaign, how to organize the general campaign, how to select arguments and examples and to prepare and circulate material for effective publicity. It abounds in examples of good publicity material. Includes an excellent bibliography.

2. *An American Citizenship Course in United States History. Book I*, pp. X + 247. *Book II*, pp. X + 170. *Book III*, pp. X + 178. *Book IV*, pp. X + 251. *General Course*, pp. VI + 167. Published for the American Citizenship League. Chas. Scribners' Sons, New York, 1921.

3. Bruce, H. Addington. *Self-development.* New York: Funk & Wagnalls Co., 1921, pp. X + 332.

A series of essays of the "inspirational" type "for the ambitious." The usual prescriptions for weak will, memory, imagination, etc. are presented with an abundance of observations and illustrations but with an almost complete disregard of scientific knowledge.

4. Hertzog. W. S. *State Maintenance for Teachers in Training.* Baltimore: Warwick & York, 1921, pp. 144.

This monograph establishes the prevalence of a transient, generally

incompetent and immature body of teachers in American rural schools, a condition not nearly so true of city schools. Reports by a survey of conditions; the characteristics of our rural teaching population, the national situation with reference to teacher shortage, the development of colleges and other training agencies, 1870–1918. As a result of this evidence proposes plans for recruiting the profession through state subsidies and gives supporting data together with arguments from methods of recruiting other professions.

5. JORDAN. R. H. *Nationality and School Progress, A Study in Americanization.* Bloomington, Illinois: Public School Publishing Company, 1921, pp. 105.

One of the *School and Home Monographs.* Reports an investigation of the records of school population in St. Paul and Minneapolis (shown to be typical of other cosmopolitan cities) to establish the relation between *progress in the schools* and nationality (in the first, second and third generations), as shown by relation to retardation, to acceleration, to school marks and to ability as determined by objective mental tests. Influence of nationality factor is shown in relation to mobility of students, occupation of parents, persistence of language in the home, economic status of parents, home conditions, church attendance and the like.

6. PITTMAN, MARVIN S. *The Value of School Supervision.* Baltimore: Warwick & York, 1921, pp. X + 129.

Reports the author's pioneer experiment with a "Zone Plan" of supervision of rural schools proved to give results markedly superior to those obtained in other representative, but unsupervised, schools. Gives scientific evidence for the value of supervision and submits a tried and practicable plan. Results shown by (1) gains in abilities in school activities; (2) professional study of the teachers; (3) attendance, (4) effect on elimination of pupils from school; (5) social life of the community. We regard this monograph as of distinct value to district, county, and state school superintendents.

7. WEBB, H. A. *General Science Instruction in the Grades.* Nashville, Tenn.: George Peabody College for Teachers, Contributions to Education, No. 4, 1921, pp. 105.

A quantitative analysis of eighteen textbooks in General Science,

leading to a statement of the current status of the following aspect of the field: (1) the subject matter of general science; (2) the acceptability of general science topics; (3) size of topics; (4) distribution of the sciences; (5) correlations between the sciences, (6) adaptability of general science; (7) analysis of marks; (8) analysis of complete reaction of children to science, etc.

H. O. R.

8. MYERS, CAROLINE E. and MYERS, GARRY, C. *Measuring Minds.* New York: Newson & Co., 1921, pp. 55.

An examiner's manual to accompany the Myers Mental Measure. Contains directions, tables of norms, etc.

BRIEF NOTICES ON NEW BOOKS

9. BRIDGES, JAMES WINFRED. *An Outline of Abnormal Psychology.* Columbus: R. G. Adams & Co., 1921, pp. 226.

A second and revised edition of a manual which forms a very useful skeleton for a course on abnormal psychology. Contains very brief summaries of facts and theories, together with excellent lists of references.

V. ADDITIONAL PUBLICATIONS RECEIVED

(*A*) *Books in General and Applied Psychology*

1. ANDERSON, J. B. *Applied Religious Psychology.* Boston: R. G. Badger Co., 1921, pp. 82.
2. GODDARD, HENRY H. *Juvenile Delinquency.*

(*B*) *Publications in the General Educational Field*

1. BEMENT, ALON. *Figure Construction.* New York: Gregg Publishing Co., 1921, pp. XII+ 124. $2.50.
2. BERRY, R. E. *An Analysis of Clerical Positions for Juniors in Railway Transportation.* (Part-time Education Series No. 6) Bulletin No. 5, Berkeley, California; University of California, 1921, pp. 104.
3. BETTS, G. H. *The New Program of Religious Education.* New York: Abingdon Press, 1921, pp. 118. $0.75.
4. CLAXTON, P. P. and MCGINNISS, JAMES. *Effective English, Junior.* Boston: Allyn & Bacon, 1921, pp. XV + 294.

5. DADISMAN, SAMUEL H. *Methods of Teaching Vocational Agriculture in Secondary Schools.* Boston: Richard G. Badger, 1921, pp. 142. $2.00.
6. ENSIGN, FOREST CHESTER. *School Attendance and Child Labor.* Iowa City Iowa: Athens Press, 1921, pp. IX + 263.
7. General Education Board, New York City.
   (1) *Public Education in Kentucky.* A state survey made by specialists of the General Education Board, 1921, pp. 213.
   (2) *Public Education in North Carolina.* A state survey made by specialists of the General Education Board. 1921, pp. 137.
8. HAYES, AUGUSTUS W. *Rural Community Organization.* Chicago: University of Chicago Press, 1921, pp. XI + 128. $1.50.
9. HOPKINS, L. THOMAS. *The Marking System of the College Entrance Examination Board.* (Harvard Monographs in Education, Series I, No. 2). Cambridge, Massachusetts: Graduate School of Education, Harvard University, 1921, pp. 15.
10. LEE, JEAN HUNT, JOHNSON, BUFORD J. and LINCOLN, EDITH M. *Health Education and the Nutrition Class.* New York: E. P. Dutton & Co., 1921, pp. XV + 281. $3.50.
11. LEWIS, E. E. *Scales for Measuring Types of English Composition.* Yonkers-on-Hudson, New York: World Book Company, 1921, pp. V + 142. $1.20.
12. NORTH, S. M. *The Teaching of High School History.* State Department of Maryland, Baltimore, 1921, pp. 122.
13. *Old-age Support of Women Teachers.* "Studies in Economic Relations of Women," Vol. XI. Boston: Women's Educational and Industrial Union, 1921, pp. 122. $1.25.
14. O'TOOLE, ROSE M. *Practical English for New Americans.* Boston: D. C. Heath & Co., 1921, pp. VI + 189.
15. PRYOR, H. C. and PITTMAN, M. S. *A Guide to the Teaching of Spelling.* New York: MacMillan, 1921, pp. XI + 141.
16. RICE, O. S. *Lessons on the Use of Books and Libraries.* Chicago: Rand McNally & Co., 1920, pp. XVIII + 178.
17. SMITH, J. RUSSELL. *Human Geography. Book I.* Chicago: John C. Winston Co., 1921, pp. VI + 369.
18. *Spelling Survey in the Schools of Newark, New Jersey.* Newark: Board of Education, 1920, pp. 32.
19. TIGERT, JOHN JAMES. *The Teaching of Civics.* Washington: Bureau of Education, 1921, pp. 10.
20. *Virginia Public Schools, Part II: Educational Tests.* Yonkers-on-

Hudson, New York: World Book Co., 1921, pp. XII + 235. $2.40.

C. New School Textbooks

1. Dance, E. H. *A Constructive Note-book of English History.* Oxford, England: Basil Blackwell, 1921, pp. XII + 110.
2. Bedford, Edgar A. *General Science.* Boston: Allyn & Bacon, 1921, pp. XXIV + 387.
3. Dunn, Arthur W. *Community Civics for City Schools.* Boston: D. C. Heath & Co., 1921, pp. X + 582.
4. Ermeling, Willard W.; Fisher, Ferdinand A. P. and Greene, George G. *Mechanical Drawing.* Milwaukee: Bruce Publishing Co., 1921, pp. 78. $0.45.
5. Flagg, Mildred B. *Community English.* New York: MacMillan, 1921, pp. XVI + 266.
6. Herben, Beatrice Slayten. *Jack O'Health and Peggy O'Joy.* New York: Charles Scribner's Sons, 1921, pp. IV + 39.
7. Huff, Bessie M. *A Laboratory Manual for Journalism in High Schools.* Muskogee, Oklahoma: Star Printery, 1921, pp. VIII + 97.
8. Jackson, Bennett B.; Deming, Norma H. and Bemis, Katherine I. *Opportunities of Today for Boys and Girls.* New York: Century Co., 1921, pp. XII + 274.
9. Klenke, William W. *Art and Education in Wood Turning.* Peoria, Illinois: Manual Arts Press, 1921, pp. 100. $1.40.
10. McMurry, F. M. and Parkins, A. E. *Elementary Geography.* New York: MacMillan Co., 1921, *Part I*, pp. V + 175; *Part II*, pp. V + 157.
11. Myers, P. V. N. *General History.* Boston: Ginn & Co., 1921 (revised), pp. XIV + 711 + XXXIII. $2.00.
12. Potter, Milton C.; Jeschke, H. and Gillet, Harry O. *Oral and Written English, Intermediate Book.* Boston: Ginn & Co., 1921, pp. VIII + 270 + XXIII.
13. *Standard Library Organization and Equipment for Secondary Schools.* (New York State Library School Bulletin) No. 45. Albany: University of the State of New York, 1920, pp. 39.
14. Starch, David and Myrick, George A. *The Test and Study Speller.* Silver Burdette & Co., Boston, 1921. Three Books.